

Tanakorn Jongvilaslux 2011: Analysis of Bending Moment in Slab of Slab-on-Beam Highway Bridge. Doctor of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Sompothi Vivithkeyoonvong, Ph.D. 158 pages.

According to AASHTO (American Association of State Highway and Transportation Officials) specification, the bending moments in deck slab of slab beam concrete bridge are depended only on spacing between beams and are equal along the span. This study shows the effects of span length of beam bridge, beam spacing, number of beams, deck slab thickness and distance from pier to bending moment and effective width for bending moment in slab. This research conducted to determine the position of truck load which causes the maximum positive and negative bending moments in slab and their values by using the two dimensional structural bridge model. Then the three dimensional bridge structures were modeled and by using the truck load position from above mentioned to determine the maximum positive and negative bending moments to attain the effective width of slab. Then the experiment on actual bridges which were modeled as the three dimensional structure will be use to study the effect of all parameters. Consequently, the equations for the maximum bending moments in slab were proposed. The study shows that parameters which have the most effect to bending moment and effective width for bending moment in slab are beam spacing, deck slab thickness and number of beams respectively. The maximum positive and negative bending moments according to AASHTO are less and more than bending moment in this study 28.32 – 50.39 % and 0.62 – 78.91 % respectively. The results are for bridges which have span length of 10 – 30 meters, beam spacing of 1.50 – 2.50 meters, deck slab thickness of 0.150 – 0.250 meters and number of beam of 4 – 10 beams.

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