

ABSTRACT

The structure of the suspension bridge has obstacles in the form of wind loads and vehicle traffic loads which can cause security and service problems, which can cause instability in the entire bridge structure. Therefore the bridge design is carried out in relation to the ratio of the sag of the bridge to the main span of the suspension bridge so that the bridge can be more stable when exposed to wind loads and vehicle traffic loads.

Analysis will be done to suspension bridges with a total span of 500 m with main span of 300 m and side span of 100 m, using variations in bridge loading. Two-hinged stiffening girder system is used in Modeling. Modeling was carried out with the help of CSi Bridge software to determine the behavior of suspension bridge stability due to planned wind loads of 30.56 m / s so that optimum bridge span and bridge sags could be determined. Suspension bridge having sag ratio range in 8-12, using sag ratio 10 in modeling.

Based on the design results obtained sag ratio is the ratio of sag and length of the main span of the suspension bridge . Based on the structural response after analysis, with the addition of various loading combinations the natural frequency of the fourth mode structure is 0,784 Hz, based on the results of analysis using CSi Bridge can be obtained deformation data on bridge decks, based on these data it can be seen that the deformations that occur on bridge decks are still within the limits allowed AASHTO.

Keywords: wind loads and vehicle traffic loads, suspension bridge, sag ratio