The Impact of increased traffic and explosion loads on the concrete bridges. Baniwalid Bridge - Case Study

Abstract:

Bridges are a means for the continuity of roads across waterways, valleys, or roads perpendicular to them, where a clear passage is provided for vehicles with shortening the time required for traffic lights at crowded intersections. The Baniwalid Bridge is located at the entrance of the city. This bridge was implemented during the seventies of the last century and was opened to traffic in the eighties. It is considered the main artery for traffic, linking the two sides of the city. Its length is about 500m, and its width is 20m. It has two directions; each direction is 8 meters wide. The construction system of the bridge consists of 31 average spans, each of which is 14.5 meters long, and each span consists of 18 pre-stressed beams, with a height of 0.72 meters and a width of 1.00 meters. Traffic increased within the city in previous years as a result of the closure of the coastal road, which led to a change in the movement of freight and land transport to eastern and southern Libya through the cities of Baniwalid and Gharyan, where the bridge was subjected to very high traffic loads that far exceed the design loads. In this study, the bridge was inspected, some previous reports were reviewed, and the construction status of the bridge was determined in general.

Key words: Traffic, Concrete bridges, explosion loads, visual inspection.