ABSTRACT: Road infrastructure is one of the basic facilities needed for the growth and advancement of any modern economy. The growth of every country’s economy is measured by the growth of its transport infrastructure. This is very true of Nigeria as the state of failed roads all over the nation gives a clear picture of the situation of the economy. The road network system has so failed that travelling within any part of Nigeria has turned to be the most assiduous venture for the citizens to undertake. For these reasons, this research examines the devastating effects of truck overloads on the road pavement failure in Nigeria. This research analyses the axle loads of heavy vehicles on Lagos- Ibadan Expressway to see how they influence the state of the road’s pavement condition. The expected pavement load was quantified through equivalent single axle loads (ESALs). Analysis of the data resulted in the existence of high vehicle damage factors caused by overloaded heavy vehicles.