Historic Bridge Foundation Facebook Archives

Did You Know…

…that bridge engineers in the United States have two ratings used for determining weight limits on bridges? There is an “inventory rating” and an “operating rating.” Taken directly from the AASHTO Manual for Bridge Evaluation, an operating rating is the maximum permissible live load that can be placed on the bridge. An inventory rating is the load that can safely utilize the bridge for an indefinite period of time. What is the difference? With bridges, very heavy loads can often pass over a bridge safely and not cause the bridge to collapse. However, at the same time, these heavy loads can wear out a bridge faster than normal. For example, with metal truss bridges, very heavy loads can cause fatigue in the steel which eventually will reduce the bridge’s load capacity and can cause problems such as cracking of the steel. In contrast, if loads are kept within an inventory rating, these issues will be reduced or eliminated. For historic bridges that are being maintained for vehicular usage it is important to keep loads within the inventory rating to ensure the long-term preservation of the bridge. However its also worth noting that the operating rating suggests that a historic bridge, even one with a relatively low inventory rating, might be able to accommodate rare, one-time usages at higher capacities such as a metal truss bridge serving a dead-end road that might need to accommodate a fire truck in an emergency for example. On the other side of the coin, its also important to ensure that posted weight limits are enforced. Even if overweight trucks can make it across a historic bridge without causing it to collapse, this overloading of the bridge will reduce the long-term service life of the bridge. This is why in situations where posted weight limits are not being obeyed by trucks it is worth considering using deterrents like headache bars to protect historic bridges.

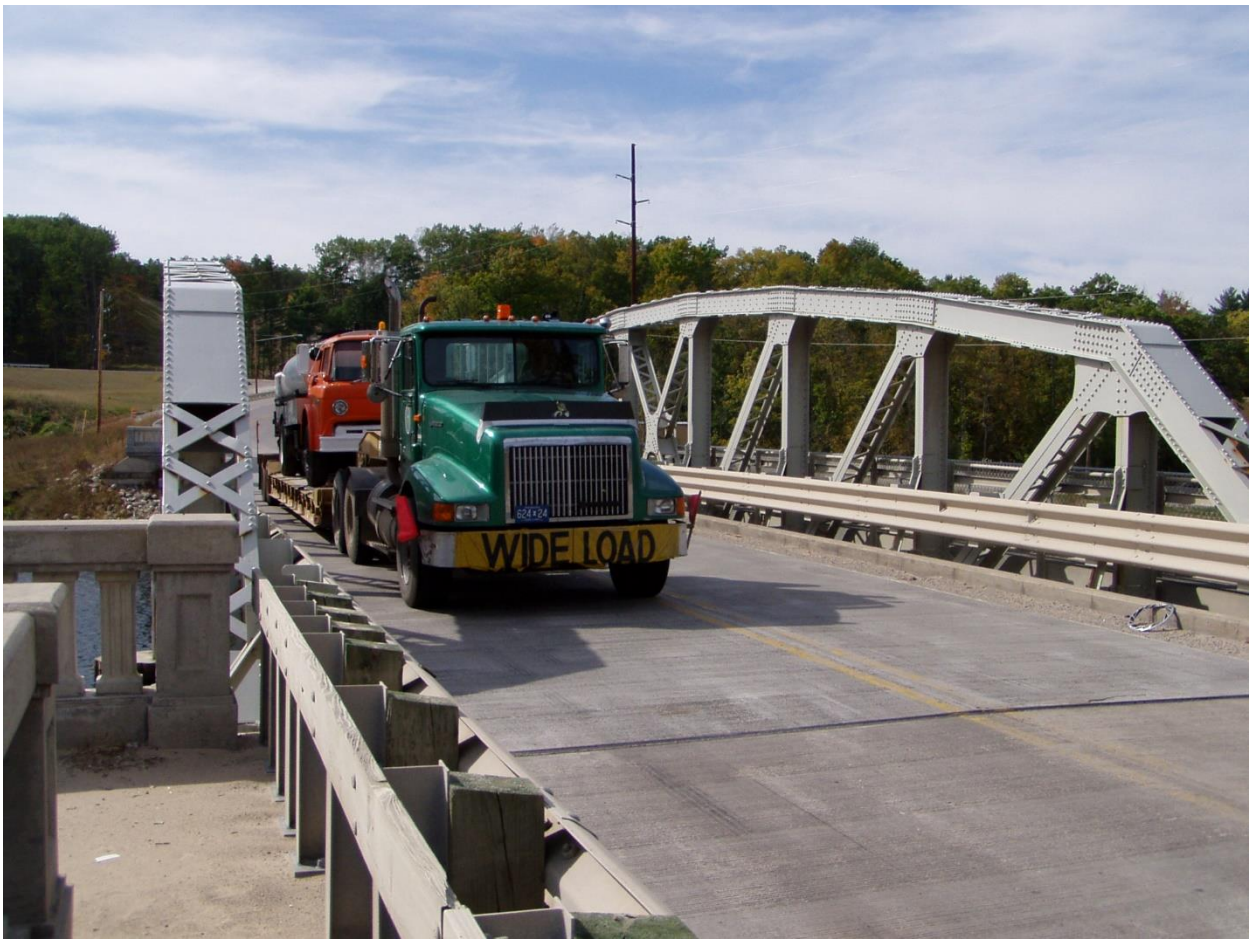
220 ton Test Load on 90 ft. Concrete Girder, Pine River at Riverdale on Trunk Line Project No. 46-9, Seville Township, Gratiot County.
291402

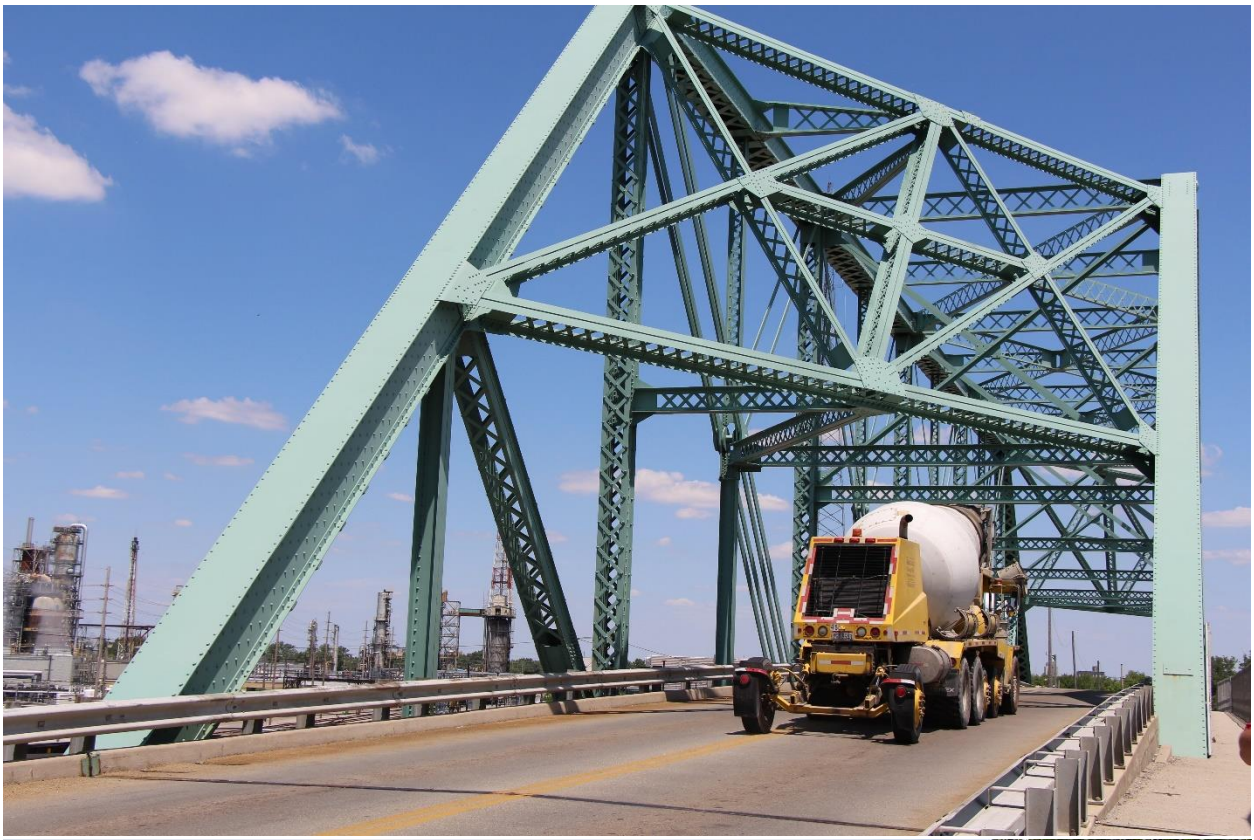
This historical photo shows a test load of 220 tons placed on a concrete camelback girder bridge in Michigan.

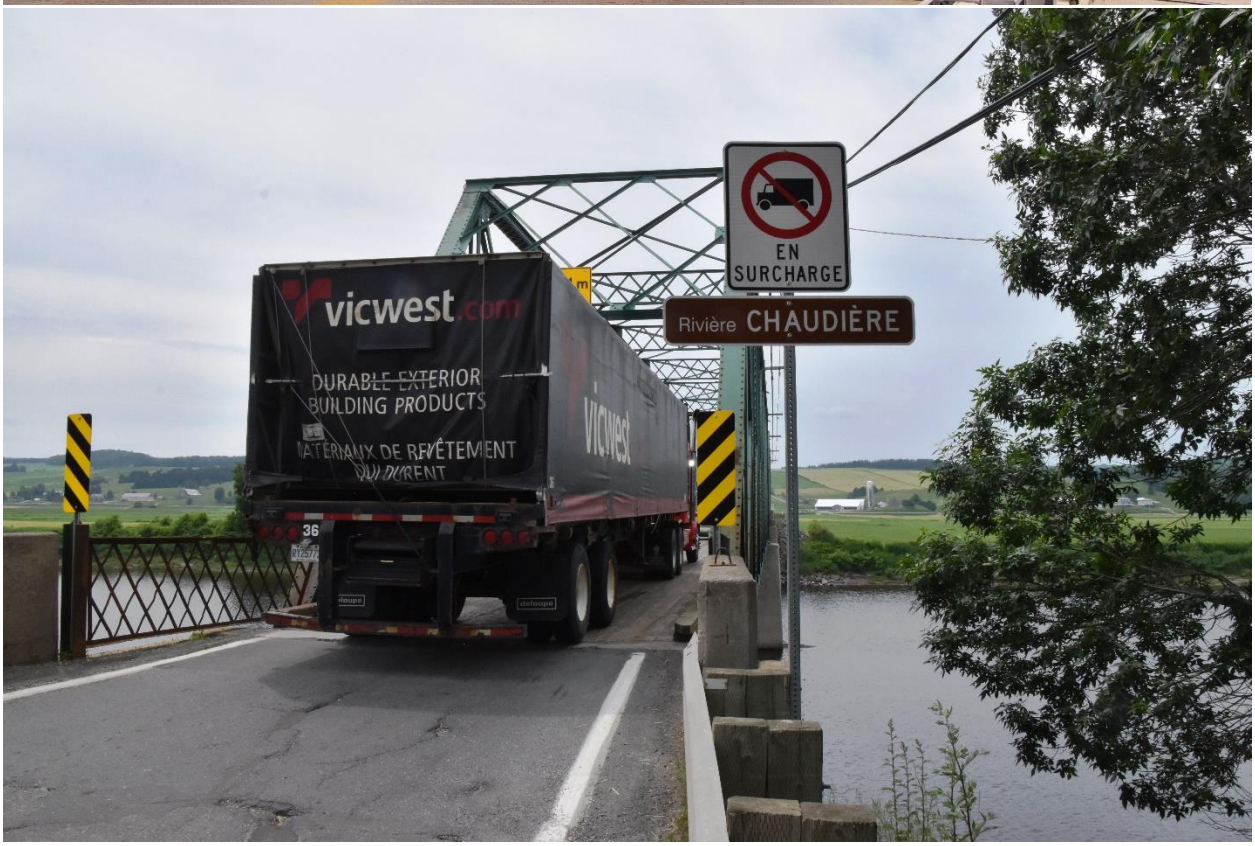
Submitted by MRS. FRED LEWIS, North Street

A farm steam engine makes its way across the Wadhams Bridge in 1915.

This historical photo of the old Wadhams Bridge in St. Clair County, Michigan shows a steam thresher passing over the pin-connected metal truss bridge. In the 19th and early 20th century, steam threshers were probably some of the heaviest loads bridges in rural areas and small towns would encounter.


WIDE LOAD

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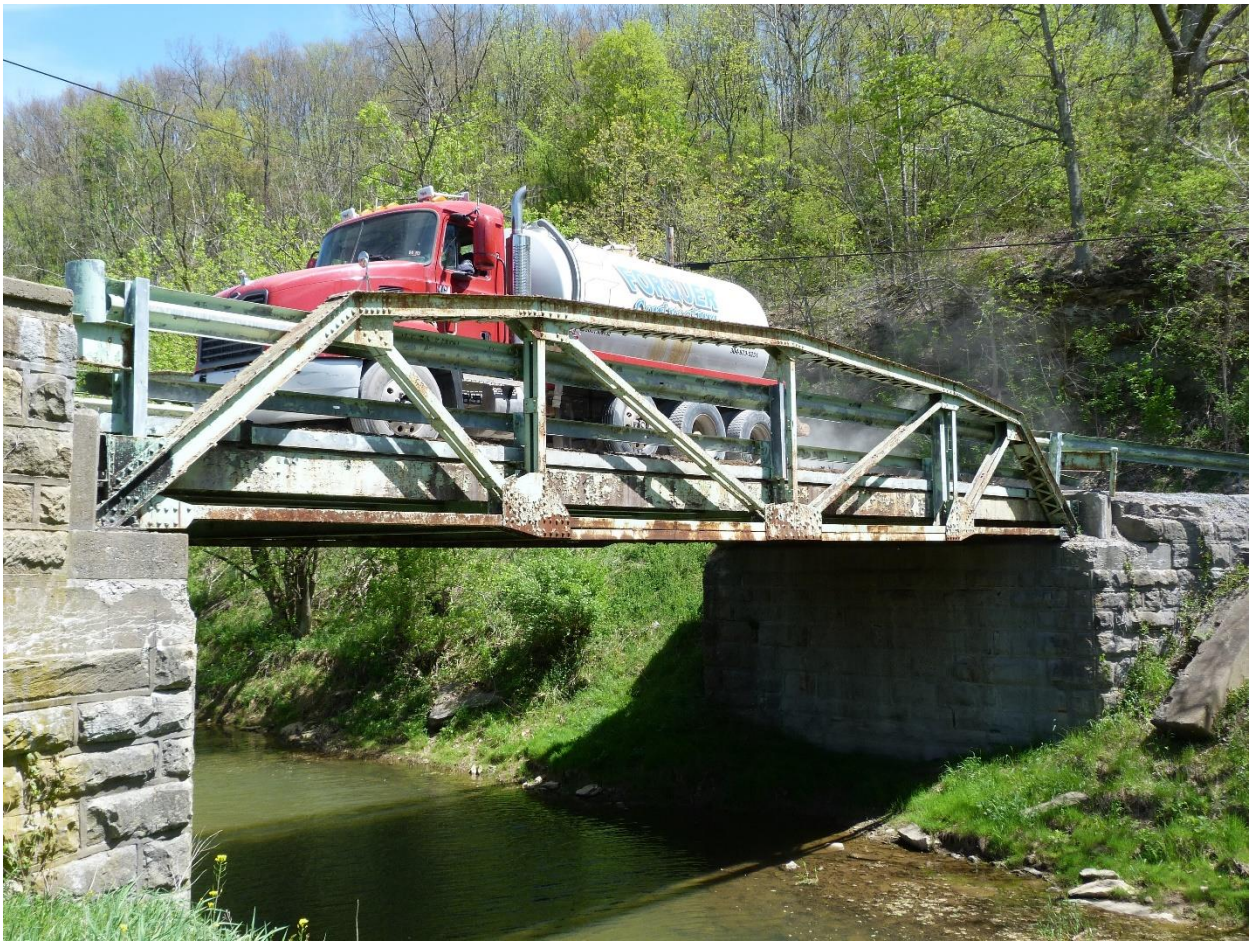
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