March 10, 2020

# Bridge Stories

We hear a lot in the news about our country's failing infrastructure. And to be sure, many of the roads and bridges we depend on have been in service far past their stale date.

What doesn't tend to get reported, though, is the intrepid effort that's put forth every day by the states, counties and municipalities who are responsible for the safety of the traveling public. Their efforts, combined with the independent engineers they work with, ensure that even the older bridges are safe.

*Bridge inspections can involve a variety of equipment as well as a wide range of structure types.*

Much of the funding for bridge building and maintenance comes from the federal government through the Federal Highway Administration. This agency has strict rules about regular inspections and tie the continuous flow of money to that compliance. Every bridge in the country must be thoroughly inspected every 24 months if it's to remain compliant.

The inspection protocol is extremely specific and must be conducted by an engineer who is certified to National Bridge Inspection Standards. There are a number of different levels of that certification for Program Managers, Team Leaders and Inspectors as well as specific bridge types, inspections following damage, and more. WHKS has engineers who are certified at each of these levels in three different states.

The inspections involve taking up-to-date measurements of the bridge components and documenting any deficiencies. A report must be correctly filed with the FHWA or the agency that owns the bridge could lose its shot at funding.

*WHKS was part of a consultant team that inspected major river bridges in Illinois in summer of 2019.*

The front-line engineers who've had their heads up under countless bridges take their responsibilities very seriously. And they've seen it all, including steel beams that have completely rusted through.

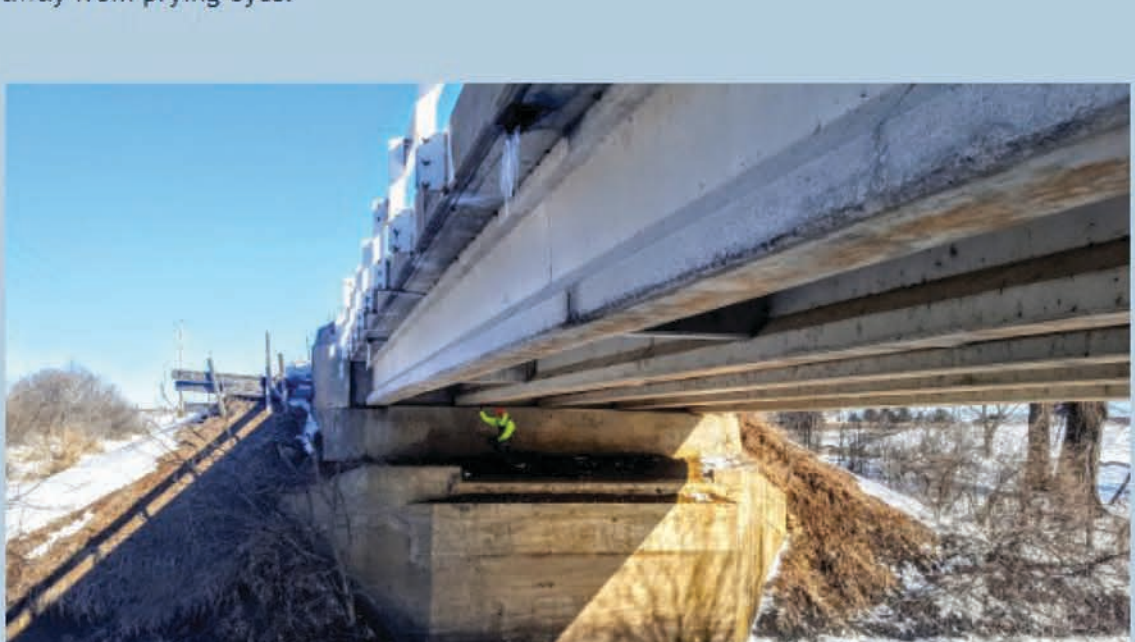
Like the time they were inspecting an older timber frame bridge that dated from the 40s or 50s. To judge the integrity of the timber piles, the inspector will hammer on the outer shell. The density of the wood can often be determined by the sound and feel of the hammer blow. This time, however, the hammer crashed right through the outer layer to reveal a completely hollow log, supposedly supporting the bridge.

*An inspector performs dye-penetrant testing to check for cracks that aren't visible to the naked eye.*

Or the time the inspectors found so much deterioration that parked their truck across the end of the bridge, blocking any traffic, as they waited for the County crew to come out and officially close it.

The most common cause of bridge failure is the 'scour' that happens when a flowing stream or river erodes the soil around and out from under the bridge's footings and foundations. In one instance, the accumulated debris that had gathered under the bridge was so great that it changed the direction of the water course. The new water flow had eroded the soil and exposed 15 feet of the supporting pile that was supposed to be anchored in that soil.

But the strangest find of all had nothing to do with the safety or support of the bridge structure. It was a tidy little meth lab tucked carefully up under the bridge deck, well away from prying eyes.



*WHKS inspectors work to get views of all areas of the bridge, even when special access equipment isn't available.*