

Backup Cameras on Roadway Maintenance Machines Can Save Lives

On December 8, 2021, a contract roadway maintenance worker, who was part of a Norfolk Southern Railway (NS) work gang, was struck and killed by a spiker roadway maintenance machine (RMM) on a main track in Reed, Pennsylvania. Three spikers were driving railroad spikes into crossties when the operator of the middle spiker reversed direction to help the spiker behind him. The operator reported that he blew the spiker's horn and looked in the rear view mirror before reversing but did not see the contract roadway worker standing behind the spiker. The National Transportation Safety Board (NTSB) determined that the probable cause of the accident was the inability of the spiker operator to see the contract worker behind the spiker and the contract worker not being alerted by the spiker's nonfunctional horn and change-of-direction alarms.

At the time of the accident, current rules required workers to stand a minimum of 25 feet behind RMMs. The contract worker was standing about 29 feet behind the RMM before it reversed direction, so he was following NS policy. But even at this distance, the spiker operator was not able to see the worker standing in the middle of the track gauge behind the spiker. In the NTSB investigation, sight distance testing revealed that someone standing in the middle of the track gauge would only become visible 39 feet from the rear of the spiker.

It is not uncommon for RMMs to move in reverse as part of normal work, so rearward visibility for operators is critical. As identified in our investigation, rear view

mirrors provide limited visibility behind an RMM. However, other available safety technology, such as backup cameras, can provide an enhanced rearward view of the surroundings for operators during reverse movements. This provides the RMM operator with a view of the area directly behind the machine that would otherwise be in the operator's blind spot.

The NTSB concluded that a functioning backup camera on the RMM would have allowed the operator to detect the contract worker before reversing the machine. Therefore, the NTSB recommended that the Federal Railroad Administration require all newly manufactured and all rebuilt and remanufactured RMMs to be equipped with backup cameras. The NTSB also recommended that all Class I railroads equip new and existing RMMs with backup cameras.

Additional information about the Reed accident, including the full report, can be found on the [NTSB's website](#) on the [investigation page](#).