

New cable racking system with fire-resistant cables: The rehabilitation plan uses a racking system to suspend fire-resistant cables on the side of the tunnel rather than buried inside a concrete bench wall, making cables easier to maintain and upgrade and decreasing potential for damage from flooding.

New wall structure with industrial fiber-reinforced polymer (FRP): This material, used to carry heavy loads of bridges in transit projects worldwide, was used to create a new wall structure along the tunnel, creating structured panels which are installed to wrap around the damaged bench wall.

New tracks, including new plates and continuous welded rail: 6,305 track feet have been installed, including new track ties, using continuous welded rail - allows trains to safely operate at faster speeds and reduces wear and tear of car equipment and the associated maintenance costs.

New discharge lines, pipes and controls: The pumping system has been upgraded to handle even greater flooding from potential natural disasters - more than doubles the water pumping capacity.

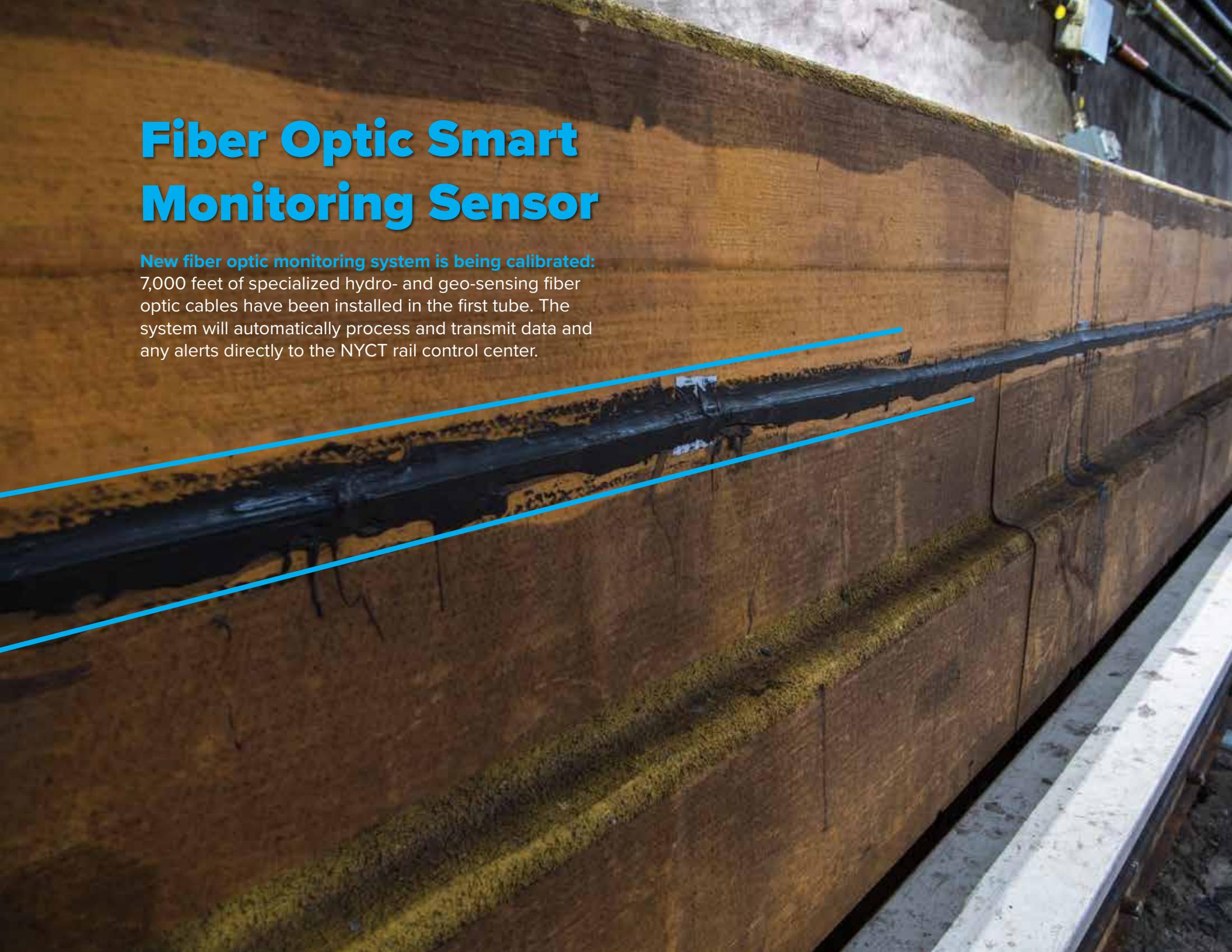
New fiber optic monitoring system is being calibrated: 7,000 feet of specialized hydro- and geo-sensing fiber optic cables have been installed in the first tube. The system will automatically process and transmit data and any alerts directly to the NYCT rail control center.



Fiber Optic Smart Monitoring Sensor

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Cable Racking

New cable racking system with fire-resistant cables:

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Pump Discharge Line

New discharge lines, pipes and controls: The pumping system has been upgraded to handle even greater flooding from potential natural disasters - more than doubles the water pumping capacity.

New Running Rail

New tracks, including new plates and continuous welded rail: 6,305 track feet have been installed, including new track ties, using continuous welded rail - allows trains to safely operate at faster speeds and reduces wear and tear of car equipment and the associated maintenance costs.

3rd Rail

4th Rail

Fiber-Reinforced Polymer (FRP)

New wall structure with industrial fiber-reinforced polymer (FRP):
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