

## 2012 NYCT Steinway Tube – Duct Bench Rehabilitation



Leak Area



Drilled Hole with Packer

Dyed Inhibitor  
Confirming Connection

NOH2O Sealing the Leak

### Highlights

- Innovative leak remediation with NOH2O® through cast iron tunnel liner
- Drilled and injected NOH2O® through patented bolts
- Work performed during regular scheduled track outages
- No train service disruption during revenue service hours

### Project Overview

The leak mitigation for Steinway Tube comprised of sealing leaks in the tunnel liner behind the existing electrical duct bench. The duct bench was demolished, and wet spots identified. In areas where the liner consisted of cast-in-place concrete, holes were drilled through the liner to inject NOH2O® behind the liner. Where the liner consisted of cast-iron segments, the concrete was chipped out to expose leaking bolts. The leaking bolts from the original construction were replaced with stainless steel patented bolts of the same diameter that allow injection of NOH2O® into the annulus around bolt hole and bolt. The NOH2O® injected through the bolts also sealed adjacent leaks in the segment joints.

### Strategy

Sovereign provided a four-man grouting crew and material to seal a leak documented during the duct bank demolition. The leak was located at the transition between the Manhattan horseshoe and cast-iron sections and originated at the concrete-rock interface and behind a steel liner.

### Results

Work was completed on February 7, 2015 in one 12-hour shift using 6 drilled holes, 550 liters of NOH2O®, 80 liters of Inhibitor and 140 liters of Actical 500. Finally, new concrete duct banks were cast.