AERIAL PIPELINE REHABILITATION

CIPP lining and carbon fiber-reinforced polymer

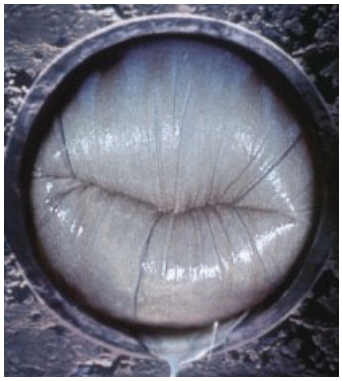
Overview

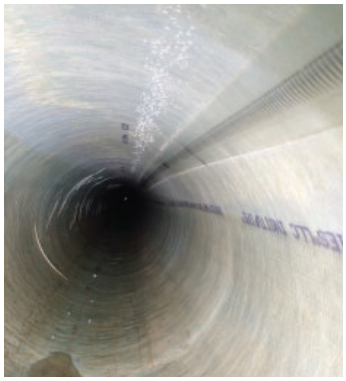
The internal or external rehabilitation of aerial piping presents unique challenges. Cured-in-place pipe (CIPP) and carbon-fiber reinforced polymer (CFRP) technologies can complement one another and provide a fully structural repair solution. A municipality in North Texas is no stranger to this design challenge, but it had never considered the combination of these technologies until it was presented as one design solution procured under one contract. After consulting with engineers, the municipality implemented an internal and external repair solution to a gravity wastewater pipeline at an aerial crossing.

The rehabilitation project included a 12- and an 18-inch aerial steel pipeline, both of which were showing signs of severe deterioration. The design team determined that the pipes would be internally rehabilitated with CIPP to first eliminate internal corrosion. Then, a CFRP system was applied to the exterior to provide additional longitudinal strength and protection from environmental exposure.

Due the internal diameter of the piping systems at 12 and 18 inches, the fiber-reinforced Tyfo® system was applied by hand as an external repair. This option helped to protect the pipe from external corrosion and provided additional bending strength for external loading conditions.

After installation, the new piping system was designed to protect the inside and outside of the pipe, extending the life of the pipe another 50 years.





Pipeline Details and Project Summary	
Project:	Aerial Pipeline Rehabilitation
Length:	155 LF
Diameter:	12- and 18-inch
Installation:	Insituform® CIPP and Tyfo® system

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