



**PPM** PROGRESSIVE  
PIPELINE  
MANAGEMENT  
THE INFRASTRUCTURE RENEWAL SPECIALISTS

**MARKET SEGMENT**  
NATURAL GAS

**LOCATION**  
QUEENS, NEW YORK CITY

**YEAR**  
2021

**CLIENT**  
NATIONAL GRID

## PROJECT PROFILE

# TURNKEY SOLUTION FOR LEAK PRONE PIPE

## 1.3 MILES / 24" CAST IRON MAIN REHABILITATION

### BACKGROUND & SITUATION

The section of 24-inch cast iron natural gas main pipeline underneath 134th Street in Queens, NY was part of National Grid's strategic Leak Prone Pipe program to line and rehabilitate over 100 miles of pipeline throughout New York and New England. Progressive Pipeline Management's (PPM) leak repair technology Starline® Cured-in-Place-Lining (CIPL) is a trusted strategy relied on for compliance with the PHMSA PIPES ACT regulations to reduce methane emissions. This 1.3-mile segment extended along 134th Street from 97th Ave. and the Van Wyck expressway.

Every joint where a length of the cast iron pipe connected to the next section was leaking. The 24-inch main changed direction multiple times with a number of bends. The densely populated, urban neighborhood has many single-family homes, apartments, and tree-lined sidewalks. Along the sixteen-block stretch, there is a Sikh temple, a used car lot, local bars and restaurants.

National Grid looked to PPM and Hallen Construction, National Grid's primary contractor, to deliver a turnkey solution. The partnership has been a cost-effective and critical alliance for National Grid's leak reduction initiatives, and allows the utility to take advantage of the 100+ years of additional life that CIPL restores back into their pipeline inventory.

### SCOPE

After National Grid engineers provided drawings and specified the sections to be lined, the teams collaborated to design the Gas Lining Layout (GLL) that mapped the entire project from the gas and the lining perspective. They would need ten pits for the lining and two additional pits for the gas shut off. The GLL was presented to National Grid, and the location and details of the ten lining pits and gas shutdown pits were identified.

National Grid has a gas feed system that regulates gas services in the neighborhood. By redirecting the service to an alternate main, they ensured that service to the customers was never interrupted during the entire duration of the project.

Once the gas was shut down, the pipeline was excavated, purged and opened within a full sheeted lining pit for PPM's crews to safely execute the lining process. Using a CCTV Aries LETS camera, PPM examined the pipe for anomalies. After the first camera inspection, the pipe was sandblasted and cleaned. The next CCTV inspection showed that it was clean without any obstructions. Lining was executed section by section. When the first segment of pipe was lined, the crews moved on to the next section.



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### CHALLENGES

The large diameter services and major connection points at some intersections required special attention. When Hallen and PPM walked the route and reviewed pit sites for excavation, one of the pits had to be moved 25 ft due to the traffic pattern at a key intersection. The ten pits for lining and two for the gas shut down were relatively large and sheeted because of the 24" diameter pipe. A unique shut-down procedure added some complexity that required the lining project to be divided into two phases.

National Grid could have opted not to install a CIPL in this 1.3-mile-long section of gas main, which would have been a daunting and extensive project extending over two years. To 'trench and replace' would have meant excavating over every connecting joint within the scope of the project. That would have required 580 individual pit openings, with a pit every twelve feet along the 1.3-mile section. The hard costs would have been astronomical and the carbon footprint and environmental impact of excavating very steep. Rehabilitating the pipeline with 12 pits total over a few months was a much more viable solution.

### OUTCOMES & RESULTS

In spite of the complexities and challenges, the Cured-in-Place-Lining project was executed seamlessly. After lining, the pipeline was inspected for the third time using CCTV. It looked exactly as it should. The pipeline was put back together with compression couplings. Pressure tests were executed per National Grid's test procedures and oversight. Once the team verified there were no leaks, the pipe was blown down. Cathodic protection was applied to the couplings, then the pits were backfilled and paved. The main was put back online.

The PPM & Hallen turnkey alliance has become integral to National Grid's strategy for leak elimination. Complex lining projects are executed safely and cost effectively with a team that has depth of expertise, decades of experience and extraordinary collaboration.