Push Method Of Pipe Replacement Proves Effective In Atlanta

For any taxpayer driving down Peidmont, a local state highway in Atlanta, GA, it looked like just another construction site. Just a blur of stone, heavy equipment and men gathered around a hole in a parking lot, just off the road. To anyone in the construction industry, this was no ordinary job site. It was relatively small and clean with an absence of barricades, minimal orange cones, no traffic congestion, no closed lanes, no overly narrowed lanes and no line of sight obstructions. This project was a great testament to the advances in the trenchless industry, and the effectiveness of a particular method - rigid jacking pipe.

The challenge of the project was the replacement of a 90-foot section of sewer pipe. The job was completed using Tenbusch Inc.'s, patented trenchless push pipe replacement technology. With this method and equipment, Roland Pugh Construction Inc. of Atlanta installed a new eight-inch ductile iron pipe through the old eight-inch sewer. The 90-foot section was replaced in just one hour.

Piedmont, a three-lane state highway, is a highly traveled roadway that runs parallel to Atlanta's well-known Peachtree Street. The location of the job was a block away from where Highway 85 exits and the traffic loops around to meet Piedmont. Any traffic disturbances would have caused not only a problem to the three lanes of vehicles, but could have possibly caused a delay and backup on I-85 at the Piedmont exit.

The process

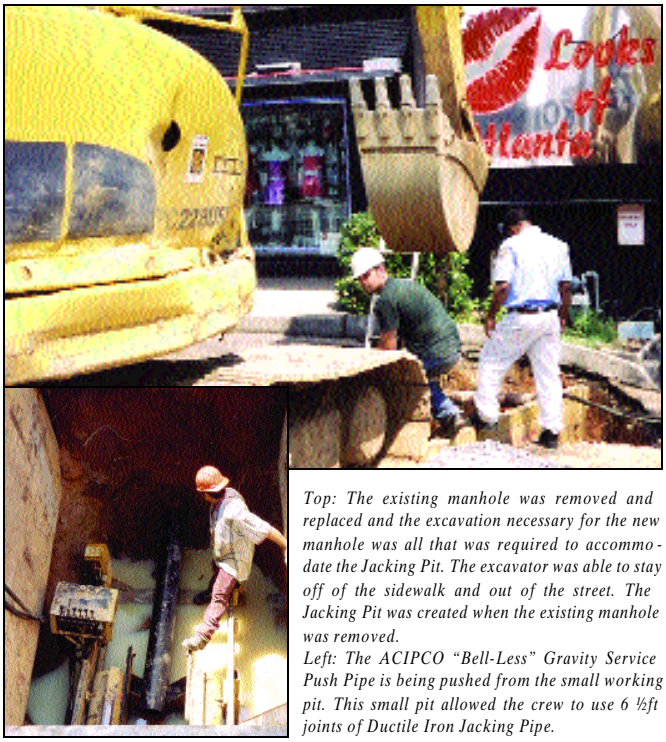
A small insertion pit was constructed just off the road in one of the neighboring business' parking spaces at the site of the existing manhole. The business had a small storefront parking lot, so the small pit used for the Tenbusch System was a necessity. Following construction of the small pit, the jacking equipment was installed in the pit and aligned with old sewer line and manhole. The lead pieces were then lowered into the pit and inserted into the old sewer. The new pipe was lowered into the jacking frame and the process of replacing the old line began. The system advanced the new ductile iron pipe using hydraulic pressure and no percussion.

The existing manhole was used as the receiving pit. The manhole was on an elevated median in the middle of the three-lane state highway. The front pieces were removed from the manhole quickly, with only one man and a cloth strap. All that remained was the removal of the jacking frame, connecting the new line at each end, and closing the hole.

This method allows the replacement of old pipe with new rigid pipe from one small pit. The existing manhole was used as the receiving pit, taking away the cost of a new manhole and the traffic headache. The Tenbusch Insertion Method (TIM) was chosen because it required the least amount of surface repairs and taxpayer inconvenience. The heavy traffic on the three-lane state highway was able to continue uninterrupted.

Replacing the old line by pushing, instead of pulling, the new rigid pipe through the existing old line, is what TIM is all about. The ability of this method to use one small pit for the jacking frame and the manhole as the receiving pit made it a quick and cost-effective option.

The new line was replaced using American Cast Iron Pipe Company's (ACIPCO) "Bell-Less" Gravity Service Push Pipe. The precision-machined jointed pipe is sealed with two O-ring gaskets. ACIPCO makes the pipe in a number of lengths to accommodate different job situations. In this case the 6.5-joints were stored on a trailer next to the pit until needed. ACIPCO's ability to produce a pipe product that can be pushed through the existing sewer line gave the city of Atlanta an alternative in sewer pipe replacement, with a product that has a long design life.



Top: The existing manhole was removed and replaced and the excavation necessary for the new manhole was all that was required to accommodate the Jacking Pit. The excavator was able to stay off of the sidewalk and out of the street. The Jacking Pit was created when the existing manhole was removed.
Left: The ACIPCO "Bell-Less" Gravity Service Push Pipe is being pushed from the small working pit. This small pit allowed the crew to use 6 ½ft joints of Ductile Iron Jacking Pipe.