



Bradshaw Construction used the New Austrian Tunneling method and compressed-air technique on a 2,000-foot tunnel in Atlanta.

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Driven to Outperform Itself

With an eye toward improving the infrastructure of America's cities, Bradshaw Construction Corp. says it doesn't hold back on digging into some of the most challenging tunneling projects.

BY BROOKE KNUDSON

Needless to say, a lot has changed in the way of tunneling techniques, equipment and technology since brothers Les and Joe Bradshaw were introduced to the industry as young boys back in the early 1960s.

Now second-generation owners of Bradshaw Construction Corp. based in Ellicott City, Md., the two have contracted work for federal, state, counties, municipalities, contractors and private owners. The company provides tunneling services for the utility and transportation sectors from Maine to Florida and as far west as Kansas, President and co-owner Les Bradshaw Jr. says.

"Most contractors say you can't be all things to all people, but we do about every type of tunneling technique available and this allows us to serve more clients and be a performance-based contractor rather than a low-cost competitor," Bradshaw explains. "We're not interested in the lowest price; we're interested in providing the best value."

The Bradshaw family has been tunneling for more than four decades. In the early 1960s, Lester Bradshaw Sr. founded Eastern Tunneling and later, in 1981, formed

L.M. Bradshaw Contracting Inc. with his four sons. By 1995, two of the sons had taken over ownership of the company, renaming it Bradshaw Construction Corp.

Throughout Bradshaw Corp.'s history, the company has used an array of tunneling techniques in its numerous projects and Bradshaw says he's proud of its ability to construct everything from smaller wood-box tunnels to liner plate and larger New Austrian Tunneling Method (NATM) shotcrete-lined tunnels.

The company also performs auger bores and rib-and-board shield tunnels, conventional pipe-jacking, slurry and earth-pressure balance microtunneling, as well as conventional drill and blast tunnels.

With its extensive experience, Bradshaw says the company is poised to complete most tunneling projects. "The company's willingness to follow through and work things out has paid off on the bottom line and in the long run," Bradshaw says.

Bradshaw Corp. performs approximately 80 percent of its jobs as a subcontractor,

Bradshaw Construction Corp.
www.bradshawcorp.com
 2006 revenues: \$22 million
 HQ: Ellicott City, Md.
 Employees: 100
 Services: Tunneling
Les Bradshaw Jr., president and co-owner: "If you're going to have a reputation for performance, you have to outperform."



Successful Projects

Bradshaw Corp. used the NATM and compressed-air technique on one of its largest and most challenging projects to date for the city of Atlanta. The \$23 million project consisted of a 2,000-foot tunnel adjacent to housing on the Georgia Tech and Georgia State University campuses.

Under the direction of Richard Hawes, area manager, Bradshaw Corp. just completed rock microtunneling drill blast and open cut techniques to accomplish 8,000 feet of 48-inch sewer through variable mixed-face conditions and hard rock for the city of Baltimore.

A team of employees, led by manager Eric Eisold, worked 30 to 50 feet underground and 15 to 25 feet below the water table. Because of the soft ground and mixed soil, the company used compressed-air tunneling and NATM together to boost the stand-up time of the soil, making the project easier and safer. This combined sewer project was completed in 2001 and vital to the city of Atlanta's continuing watershed management program.

Getting Past Challenges

In its efforts to minimize costs, Bradshaw says the company feels the same budget pinch of rising material costs as other contractors. "It's something the entire construction industry has to deal with," he adds. "We may be keeping costs of installation down, but the cost of materials is up. Concrete today is double that of what it was a year ago and [the cost of] labor is certainly up."

Bradshaw Corp. must also face the challenges of an aging management team. It attempts to combat this by advancing people through the ranks and passing along know-how on traditional tunneling methods to the next generation of its leaders.

"The biggest challenge will be changing leadership over the next few years," he says. "That's where you're going to find that technology comes in, but we do have the advantage where we try just about anything, and we're not afraid to invest money where there's a significant amount of risk."

"It all comes down to people in the tunnels[who] really make it happen. The work is hard, dirty and complex, and it takes really smart and dedicated professionals to build these projects." ■

but 50 percent of its dollar volume is generated by projects it has been the general contractor on, Bradshaw notes.

Seizing the latest technologies and new equipment while embracing traditional hand-tunneling techniques are what sets the firm apart from other tunnel excavators, Bradshaw says. "If you're going to have a reputation for performance, you have to outperform," he adds.

Underground Expertise

The need to improve infrastructure across the United States is driving the demand for Bradshaw Corp.'s services. "In 17 years, we've basically grown from \$5 million to a \$22 million firm and from about 30 employees to about 100," Bradshaw notes.

Used extensively in public works projects, tunneling often is preferred over trenching because it reduces disruption to the everyday workings of a city. It reduces safety hazards because it avoids disrupting surface areas and leaving hundreds of feet of open earth exposed, and it costs less for the owner because tunneling rarely requires detours, street closures or replacing utilities.

Mechanization has also made a sub-

stantial impact on the industry and the company. "In the tunneling business, having the right tunneling machine available is critical," Bradshaw says. The company owns tunnel boring machines, shield tunneling machines and other state-of-the-art equipment. The company owns more than a dozen tunneling machines and three microtunneling systems.

With a 400 percent growth rate since 1990, Bradshaw says capital investment has grown double that rate. For the company, investing in new equipment is no different than an office upgrading its computers. "Change in our industry has almost been constant," he says.

The cost of equipment, although more expensive – sometimes in excess of \$4 million for one machine – is offset by improved efficiency. "The equipment pays for itself in about three to five years, assuming you can keep it busy," Bradshaw says. "Keeping such specialized equipment busy is the key to recovering its cost and a part of the major risk of investing in it."

"It also must perform, and in many cases, we are investing in equipment and techniques never before tried in the United States or in [specific] soil conditions," he adds.