

Tight Quarters

Program Management Enables Additional Transmission Capacity in Heavily Populated and Geographically Challenging Region



The view from Beseck Mountain of the cleared site for the new Beseck Switching Station in Wallingford, Conn.

Southwestern Connecticut is one of the most densely populated regions in New England. It's also one of the most transmission constrained regions. And while the population density isn't likely to change, Burns & McDonnell is working with client Northeast Utilities (NU) to alleviate the latter.

The Middletown-Norwalk Transmission Project involves nearly 70 miles of new 345-kV transmission line, of which 24 miles will be cross-linked polyethylene (XLPE) underground cable, and three new 345-kV substations. The underground portion of the project marks the longest segment of 345-kV underground line in the country.

The related Glenbrook Cables project includes construction of a new 8.7-mile 115-kV XLPE underground cable double-circuit transmission line and associated substation upgrades.

As program manager, Burns & McDonnell is tackling all aspects of these massive projects. NU's segment of the Middletown-Norwalk project is a \$1.05 billion effort, with complex permitting, design, procurement and outage requirements. Glenbrook Cables is a \$190 million project consisting mostly of lines beneath busy traffic arteries.

"Program management has enabled this project to be a true team effort for Northeast Utilities and Burns & McDonnell," says Mike Beehler, associate vice president. "As program managers, we are able to take on the responsibility for design, procurement, construction management, permitting, right-of-way acquisition, environmental issues, community relations and document control."

Working the Plan

From the outset in July 2004, Burns & McDonnell managers have worked from a detailed plan to manage all aspects of the program. The plan breaks the work into more manageable pieces that keep everything on track, even when one factor is delayed.

"Construction on the three primary parts — overhead, underground and substations — has started on time. The NU/Burns & McDonnell team is making every effort to bring this project in ahead of schedule," says Brett Williams, Burns & McDonnell program manager. "As program manager, we've been able to direct the purchase of major materials, getting our orders into manufacturers early. Timing is optimized so that construction can begin immediately."

The permitting process in Connecticut is complicated, with each town and multiple agencies having unique rules and processes. Through the permitting and design phases, nearly 270 comments from municipalities and residents were received, and more than 60 percent of requests for design changes were accommodated.

“In terms of permitting, every permit we received was a major milestone in moving forward,” says Ron Jenssen, director of transmission projects. “As program managers, we developed systems to mitigate the risk upfront. Agencies and towns could make changes and revisions to the project, but our schedule and budget do not change. That’s what we bring to the table.”

For the overhead sections, outage planning requires extensive management.

“Controlling the entire process enables us to minimize outages, which has included designating materials delivery on a pole-by-pole basis,” says Jim Hogan, director of T&D engineering. “Whether it’s scheduling construction in wetland areas in the winter or having the appropriate structures ready for a particular outage, program management builds in the flexibility needed to handle a job of this size.”

Precision Routing and Design

The underground portion of the Middletown-Norwalk program closely follows Connecticut Route 1, which roughly parallels I-95 along Long Island Sound. Route 1 often becomes an alternate commuter route when an accident blocks traffic on I-95.

While rush hour traffic snarls can be commonplace, the Connecticut Department of Transportation restricts operations to occur during non-rush hour times. Much of the work is happening at night. The underground vaults (30 feet long by 8 feet wide by 8 feet deep) are being installed off the travelway when possible, pushing them into parking lots.

“Some older businesses had large signs that weren’t subject to new size regulations. If the sign has to be moved or taken down

temporarily for construction, the newer regulations apply,” Hogan says. “This has required detailed routing.”

The Connecticut landscape is dotted with wetlands, and the ground is peppered with shallow rock — hard granite that requires excavation. The diverse geography of the region makes it a challenge to get equipment, crews and materials to work sites.

“The region’s geographical diversity and dense population required sophisticated planning of overhead line design and construction, particularly when planning the conversion from old structures to new, while keeping the lights on,” Hogan says. “Among the 770 poles in the overhead portion of the project, there are roughly 150 distinct pole types, ranging in height from 70 feet to 190 feet. Responding to local preferences and geographical features requires a much broader range of structures.”

Reaching Out

The high-profile nature of the Middletown-Norwalk and Glenbrook Cables projects requires sophisticated communication programs.

For public officials, regular project updates and monthly conference calls are key. “During the design phase, we conducted numerous meetings with cities and towns to obtain input

and explain details like pole location, height and finish,” says Pat Bandzes, community relations manager for the Middletown-Norwalk program. “Now that we’re in the construction phase, we’re preparing them for the magnitude of this project, explaining the size and appearance of equipment they’ll be seeing so they know what to expect.”

Public officials, residents and businesses in the 18 communities affected are encouraged to visit the project Web site. “We do everything we can to drive them to the Web site, where they can click on their city or town and get an update on the route, what’s being built and upcoming construction,” Bandzes says. “We also have a project hotline that residents can call and get a response, usually within 24 hours.”

A staff of three handles all communications for Middletown-Norwalk, along with contractors’ field representatives who make personal contact with property owners in advance of construction. Written updates are also mailed frequently to about 7,000 residents or businesses — more than double the number of property owners — who may be impacted by noise or work from construction in their area.

For more information, contact Mike Beehler, (816) 822-3358.

Night installation of an underground splice vault in Bridgeport, Conn.

