

Transmission & Distribution



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LAYING THE GROUNDWORK

Since 1945, O'Brien & Gere has been instrumental in the creation of thousands of miles of transmission and distribution mains and hundreds of pumping stations. The firm is equipped to handle all transmission and distribution projects, from site evaluation and permitting through computer-aided design and construction.

The O'Brien & Gere team routinely works with not only planning boards and regulatory commissions, but with environmental and citizens' groups as well, because the firm understands the importance of involving the communities in selecting which transmission systems are built.

O'Brien & Gere has successfully completed projects involving:

- Mains as large as 102 inches in diameter
- Transmission systems up to 100 miles in length and serving major metropolitan areas
- Transmission lines laid through hilly terrain and over or under waterways, bridges, and railways
- Pumping stations with capacities up to 300 MGD (Million Gallons per Day)
- Directional drilling
- Trenchless technology
- Rehabilitation of urban water system

FROM THE GROUND UP

Comprehensive Water System Design

Before the design process begins, O'Brien & Gere undertakes a thorough study of factors that will impact the system. Issues the firm addresses during this phase typically include:

- Routine alignment
- Distribution water quality
- Environmental issues
- Feasibility and cost
- Average and peak flows
- System modeling
- Connections with neighboring systems
- Emergency connections
- Projected future demand
- Regulatory requirements and permitting
- Conservation and demand management
- Water hammer

O'Brien & Gere uses the latest advances in computer modeling. Software applications include WaterCAD, Cybernet, H2ONet, EPANET, KYPIPE, and LIQSS. These programs are also essential for evaluations during master planning and continuing through the testing and analysis of systems after construction.

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Additionally, they are key tools for Initial Distribution System Evaluations (IDSEs), which will soon be required under pending Safe Drinking Water Act requirements.

Following the investigation phase, O'Brien & Gere starts to custom-designing the water system – a painstaking task which the firm pursues with an eye to the long view. (Some system designs have incorporated planning periods of up to 50 years.)

DOES IT HOLD WATER?

Testing & Surveying Water Systems

The O'Brien & Gere team conducts a wide range of tests, surveys, and simulations on completed and about-to-be-upgraded water systems. The testing process covers the following areas of concern:

- Hydraulics
- Leakage
- Fire flows
- Zone and peak demand flow
- Corrosion
- Pressure transients
- Valve and hydrant operation
- Water quality/water age

O'Brien & Gere has maintained long-term 'partnerships' with many of the systems it has constructed. For example, the firm continues to work with the Onondaga County (NY) Metropolitan Water Board since designing and constructing its original system in 1962. More recently, the firm has:

- Used directional drilling to cross a major river
- Used computer models to assess distribution system water quality
- Managed the rehabilitation of the water transmission and distribution systems for the nation's capital

