Layne professionals include the ultimate specialists in the design and construction of intakes for high-capacity water supply systems.

**INTAKE STRUCTURES**
Layne’s extensive experience includes surface water intakes, infiltration galleries, combined aquifer and surface water intakes, riverbank filtration systems and seawater intakes. These intakes have ranged in capacity from several thousand gallons per minute (gpm) to over 150,000 gpm, including intakes constructed in alluvial and cohesive soils, bedrock and mixed-face conditions.

Built for municipal and industrial customers, Layne’s surface water intakes include conventional riverbank structures with mechanical screens, submerged pipe intakes with static screens and tunneled intakes with drilled “tap” connections into the lake or riverbed. By their very nature, these projects call upon Layne’s skills and experience in cofferdam construction, shaft excavation, underwater blasting, excavation and marine pipe installation, and the actual pump station construction itself. Layne’s self-perform capabilities also include large, deep vertical shafts, heavy concrete work, hard rock tunneling, marine work and intake pipelines common to large intake construction.

**INTAKE TECHNOLOGY**
Layne’s fixed-screen surface water intake design contains almost no moving parts, keeping O&M costs extremely low. Layne’s specialized construction techniques incorporate trenchless technology for sinking/building the reinforced concrete caisson that serves as the wet well pumping station, and for installing the intake line(s) to deliver water from the surface water source into the caisson. This technology minimizes disturbance during construction and operation, often simplifying the permitting process. The intake screens are positioned and designed to optimize fish protection and hydraulic efficiency, minimizing plugging and facilitating self-cleaning where possible. Automated backwash systems complement this design to ensure the screens remain open.

**PROJECT DELIVERY FLEXIBILITY**
Layne offers the delivery method that meets the client’s project goals. Layne’s project delivery experience includes lump-sum bid, design-build, design-build-operate, engineer procure construct, guaranteed maximum and construction manager at risk. Financing options are available.
EXAMPLES OF OUR SUCCESS

ANDERSON REGIONAL JOINT WATER SYSTEM  
SOUTH ANDERSON WATER SUPPLY INTAKE & PUMP STATION  
$5 Million – Completed 2013 – Anderson, SC

The work includes construction of one 23 FT diameter vertical shaft to an approximate depth of 60 FT, one 220 FT 36” micro-tunneled piping connection to Lake Hartwell, three 30” cylindrical T-screens with air burst system, and one 7.8 MGD raw water pump station with three (3) vertical turbine pumps and associated pre-lube system.

MISSOURI AMERICAN WATER: RAW WATER INTake  
$7.8 Million – Completed 2011 – New Jefferson City, MO

In an effort to replace an existing pump station and increase pumping capacity, a new pump station and intake was constructed along the banks of the Missouri River. The project involved the construction of a 19’ diameter x 75’ VF concrete-lined wetwell and construction of a 200 LF horseshoe, tunnel excavated using drill and blast techniques. Prior to tunneling, marine operations drilled two 48” shafts in the river to serve as intakes. Once the intake shafts were reached by tunneling, two 20” ductile iron pipelines were installed and screens fitted to the intake shafts.

BECHTEL POWER CORPORATION: PRAIRIE STATES ENERGY CAMPUS RIVER WATER INTAKE PHASE I, AND SUPPLY DISCHARGE PIPELINE  
$24 Million – Completed 2009 – Marissa, IL

This design/build project is part of the largest construction project in the US. This project takes up to 15 MGD of river water from the Kaskaskia River and delivers the water 15 miles to the Energy Campus located 60 miles southeast of St. Louis, MO. Layne designed and constructed a 45’ deep internally braced sheeted structure to allow construction of the pump station up to the base slab level. The 300’, 42” intake pipeline also required extensive sheeting.

KENTUCKY AMERICAN WATER COMPANY: RIVER POOL 3 TREATMENT PLANT  
$38 Million – Completed 2009 – Owenton, KY

Contributing to the construction of a new 20MGD water treatment plant, a new intake structure was constructed in the Kentucky River to supply the City of Lexington, KY and surrounding communities. A 28’ diameter x 70VF shaft, to be used as a wetwell, was constructed utilizing jet grouting and conventional excavation methods. Extending out from the wetwell a significant cofferdam was built into the river. Inside the cofferdam intake piping, valves and appurtenances were installed. The cofferdam was removed and intake screens were set into the river utilizing work barges.