

A close-up photograph of a child's hands cupping water from a fountain. The water is clear and splashing. The child is wearing a yellow sleeve. A large, light green circular graphic element is overlaid on the image, framing the scene.

Our Water, Our World

North America Water Services

Solving complex challenges through advanced technologies and innovative approaches.



Our passion is developing sustainable water solutions that help to create a better world.

As a leading global Water practice, AECOM is distinguished by two core strengths: our people, and our ability to deliver. Our experienced Water teams are adept at using advanced technologies and are constantly discovering new ways to solve complex engineering and construction challenges. Our services cover everything from environmental planning studies to detailed design, program and construction management, and operations and maintenance. With alternative delivery strategies such as design-build increasingly a major part of our work, we can provide financing options through our public-private partnership (P3) organization.

Management of long-term, multi-project programs is an AECOM specialty. We help validate our clients' overall strategies, establish design and construction standards, oversee the work of project delivery firms, and manage critical performance issues like budget, schedule, and addressing stakeholder priorities. To activities that may initially seem dauntingly involved and complex, we bring order, clarity and a well-lit path to program completion. We deliver

our services to a wide range of public and private sector clients. Our public sector work encompasses everything from small rural communities, to large urban centers, to agencies with regional responsibilities. Our private sector work includes assignments for multiple commercial/industrial sectors, including oil and gas, chemicals, power, food and beverage, manufacturing and pharmaceuticals.

Areas of expertise:

- Wastewater Treatment, Recovery and Reuse
- Biosolids, Energy Recovery and Optimization
- Drinking Water Treatment and Supply
- Brackish and Seawater Desalination
- Tunnels, Conveyance, Collection and Distribution
- Dams, Hydropower and Levees
- Watershed and Ecosystem Management
- Industrial Treatment



Sewer System Improvement Program

San Francisco, California, USA

Consistent communication based on genuine listening to stakeholder concerns is the key to ensuring that they embrace major infrastructure initiatives such as this \$6 billion Sewer System Improvements Program currently being managed by AECOM in San Francisco, California.

Wastewater Treatment, Recovery and Reuse



Sand Island Wastewater Treatment Plant Design
Honolulu, Hawaii, USA



Fillmore Water Recycling Plant
Fillmore, California, USA
AECOM provided construction and program management services and was the owner's representative for the state-of-the-art water recycling plant (WRP) under a design-build-operate approach. The \$43 million WRP used membrane bioreactor wastewater treatment technology to meet the City of Fillmore's water quality and environmental improvement goals.

Our wastewater clients need to do more with less. New regulatory and service demands often place a heavy burden on aging wastewater infrastructure, outdated technologies and tightening budgets.

Industries, municipalities and regional authorities ask AECOM to help them improve treatment levels and efficiencies, and even to transform treated wastewater into a reusable resource. Our areas of expertise include planning, pilot testing, design and construction services of the secondary and tertiary treatment

facilities that produce recycled water for agricultural and urban irrigation, industrial uses, and other applications.

Technical innovation continues to be an AECOM hallmark, based on superior applied research and development into such processes as advanced biological treatment for nutrient management (including sidestream and mainstream deammonification processes to help reduce high energy and chemical costs), membrane processes, biologically activated filters and advanced oxidation systems. Today we are supporting regulatory



Easterly Wastewater Treatment Plant,
Chemical Storage and Feed Facility
Cleveland, Ohio, USA



Wet Weather Systems

agencies and clients as they look toward indirect and direct potable reuse in a safe and sustainable manner. Our focus is to maximize performance while minimizing cost and footprint, and it is always on protecting public health and our environment.

**Creating a better
and more sustainable
tomorrow by recycling and
reusing resources today.**

AECOM is in the forefront of the effort to help communities achieve wet weather regulatory compliance and meet water quality goals. Our capabilities extend from research activities and development of sewer system models, through master planning and into design and construction. Boston, Cleveland, Pittsburgh, Atlanta, San Francisco, New York and Washington, D.C., are among the large U.S. cities that, in recent years, have turned to us for planning, design or implementation of wet weather management programs.

From top:
**Annacis Island Wastewater
Treatment Plant Upgrade**
Vancouver, Canada

**Pilot Biological Nutrient
Removal Facility**
New York, New York, USA

**Environmental Protection Agency
(EPA) Wet Weather Policy**

AECOM authored the Guidance Document for Long-Term Control Plan Development for EPA. This manual provides public works professionals, design engineers, and regulatory agencies with information on compliance with the CSO Control Policy.

Biosolids, Energy Recovery and Optimization



From top:
Disco Road Source Separated Organics Processing Facility
Toronto, Canada
Northwest Water Pollution Control Plant – Combined Heat and Power System
Philadelphia, Pennsylvania, USA

Blue Plains Wastewater Treatment Plant

Washington, D.C., USA
During DC Water and AECOM's 80 year partnership, we have worked together to plan, design and build the nationally recognized award winning Blue Plains Advanced Wastewater Treatment Plant in Washington, D.C. Today, we are serving as program manager and construction manager for a variety of capital improvements at Blue Plains.

Biosolids

AECOM has extensive experience in biosolids management planning and in the design and construction of biosolids processing systems. We have a demonstrable track record with processes and equipment related to thickening, conditioning, blending, dewatering, stabilizing and incinerating biosolids. We help our clients tailor the biosolids processing solution to local drivers and biosolids markets, requirements and constraints. Furthermore, our system planning and designing will consider community impacts such as odor, noise and traffic. We have acted as a researcher, master planner, designer, builder, program manager and

operator for large clients throughout North America, including the cities of Washington, D.C.; San Francisco, California; Miami, Florida; and Toronto and Vancouver, Canada.

Our wastewater professionals help our clients meet the strict regulations and quality standards at local and national levels placed on biosolids for beneficial use.

We develop cost-effective treatment systems while optimizing resource recovery, including advanced biogas processing to create energy, reuse of residuals, and mining of nutrients and minerals.



Wards Island Wastewater Treatment Plant
New York, New York, USA

Innovative technology is saving energy and money at one of New York City's major wastewater treatment plants. A trendsetting sewerage treatment process called SHARON (Stable High Rate Ammonia Removal Over Nitrate) is in place at the Wards Island wastewater treatment plant. This is the first SHARON installation in the U.S. and the largest such installation in the world.

Energy

With energy costs skyrocketing and concerns about greenhouse gas emissions growing, finding ways to optimize the efficiency of our water and wastewater infrastructure can provide real benefits in terms of costs and environmental effects. Our goal is make treatment facilities into overall energy creators rather than energy consumers, reclaiming a valuable resource.

For the past 20 years, we have been a national leader in providing energy services, helping our clients plan for their energy futures, update their equipment and optimize operations while lowering expenses. We are an approved full-service energy services

company (ESCO) by the National Association of Energy Services Companies (NAESCO). The direct benefit to our clients is access to our broad range of energy reduction concepts based on our experience and technical expertise in water and wastewater processes.

The key to our energy services is our ability to look at the picture as a whole. Taking a broader view to analyze the use of multiple strategies usually provides even greater benefits than the use of a single strategy.

We have particular expertise with enhanced nutrient removal systems, and advanced biosolids dewatering and oxidation processes. Our focus on energy generation, optimization and conservation helps our clients reduce costs as well as improve services.

Water Treatment and Supply



From top:
Davie Water and Wastewater Treatment Plants
Davie, Florida, USA
Delaware Lime Softening Surface Water Treatment Plant Filtration Improvements
Delaware, Ohio, USA

Population growth, demographic changes and environmental influences are changing our approaches to water treatment and supply. Increased human activity impacts the watershed, challenging our water supplies in addition to climate variation that stresses our water systems. Climate variation is observed through more frequent and intense precipitation events, longer and often warmer summer months that can also develop into periods of extended drought. Add to the challenges of managing increasingly complex infrastructure and in many cases aging infrastructure then it becomes clear that a full detailed understanding of our water

systems is essential. AECOM brings the necessary technical and project delivery capability to solve our water challenges.

Whether planning, pilot and demonstration testing, conceptual design, final design through to construction, start-up and commissioning, and financing, our water team has the tools and engineering and project management capabilities to solve the most complex water treatment challenges. Our ability to work with stakeholders and regulators provides the confidence that our client's challenges can be solved.

Our water treatment capabilities include:

- Water Supply—capture, storage and management
- Water Treatment—from conventional to advanced innovative technologies
- Water Storage and Distribution—ensuring safe, reliable and robust water supplies to the point of consumption

AECOM's capabilities in these core areas are briefly described on the following pages.



From top:
In-situ Water Quality Data Acquisition at the Kissimmee River Aquifer Storage Recovery Pilot Site
 Okeechobee, Florida, USA
Water Treatment Plant No. 4, Raw Water Tunnels and Deep Water Intake
 Austin, Texas, USA

Water Supply

Every day, we all use water. Lots of it. For drinking, washing, cleaning, manufacturing, flushing and numerous other ways. Our lives depend on it. As a result, we need water supplies that are safe, reliable and robust, both now and in the future. This starts with the water sources of supply including, where necessary, the identification and adaptation of alternative supplies to address water scarcity, reliability and redundancy.

AECOM has extensive national and international experience with all types of water supply sources:

- Surface water supplies (e.g., rivers, lakes, reservoirs and oceans)

- Groundwater supplies (e.g., aquifers, groundwater-under-the-influence and bank infiltration)
- Reuse water supplies (e.g., gray water sources and stormwater runoff)

This breadth of experience means that our clients consistently get the best solution to their water supply challenges. Working collaboratively with our clients, our water supply experts use some of the world's most sophisticated computer models to predict water quality and quantity, even in this era of climate change. And by using the latest technologies, we deliver this water at a total lower cost.

Commitment to Innovation

AECOM continues to advance water technologies through direct investment and partnership with our clients and business partners. At the Lorne Water Treatment Plant in the Region of Peel, Ontario, we are pioneering gravity membrane filtration to reduce operational and maintenance costs and improve reliability. We are also developing robust solutions to remove emerging contaminants such as our work with the U.S. Bureau of Reclamation in California for selenium removal and development of technologies to remove organic pollutants such as poly fluorinated compounds and 1-4 dioxane.



Hialeah Water Treatment Plant
Hialeah, Florida, USA

AECOM provided design-build services to the City of Hialeah, Florida for a \$60 million brackish groundwater reverse osmosis WTP that draws water from the Upper Floridian Aquifer.



From top:
Advanced Water Purification Facility
Oxnard, California, USA

Lead Line Replacement Work Order

Pittsburgh, Pennsylvania, USA

To assist Pittsburgh with renewing their aging infrastructure, we are locating where lead is used for service lines. Like most cities, historical records of the materials used in the system are poor. We are tracking site-specific results using a proprietary construction management software tool (e-Builder) and recording the GPS points for each new curb stop. The database will provide insight for future O&M needs by easily identifying and locating infrastructure.

Water Treatment

Across the world, water treatment challenges range from public health protection to water quality concerns and meeting federal regulations. Whether development of new water treatment plants, redevelopment of existing plants, or adapting to address emerging contaminants, AECOM delivers the full spectrum of treatment solutions.

Our water treatment design experience varies in complexity from conventional facilities serving a few hundred residents to large advanced wastewater treatment facilities with capacities up to 400 million gallons per day (MGD). We have been involved with iconic treatment facilities such as New York’s first filtration facility, the

Croton Water Treatment Plant. We also implement progressive technologies such as advanced oxidation processes to address taste and odor for the Region of Peel, Ontario.

AECOM has performed studies, design, program management, design-build and construction management services for numerous advanced water treatment facilities. Our expertise includes membrane based advanced treatment process trains such as microfiltration and reverse osmosis (RO), as well as ultraviolet based advanced oxidation and non-membrane based treatment technologies including ozone, biologically activated carbon and granular activated carbon.

Climate variation and urbanization are increasing the severity, persistence and toxicity of algal blooms in our water. Our pioneering work in optimizing dissolved air flotation has proven highly successful in addressing challenges associated with algae blooms.

Brackish and Seawater Desalination, Water Reuse

When traditional water supplies are insufficient to meet demands, AECOM brings the expertise to treat brackish and seawater sources and wastewater supplies for indirect and ultimately, direct reuse. We perform pilot studies, peer reviews, planning, design and construction of water treatment facilities involving microfiltration, ultrafiltration, nanofiltration (NF) and RO processes.



John J. Carroll Water Treatment Plant
Boston, Massachusetts, USA



© SFPUC



From top:
San Francisco WSIP
New Irvington Tunnel
San Francisco, California, USA

Water and Distribution Sustainability Contract
Houston, Texas, USA
AECOM with the City of Houston in optimizing and sustaining water quality and infrastructure throughout the City's water treatment and distribution systems. Strategic initiatives executed included the development of a City-wide nitrification action plan, reduction of disinfection by-products, piloting unstaffed remote water quality monitoring stations, enhancement of the City's leak detection program, and conducting the Partnership for Safe Drinking Water's Distribution System Self-Assessment.

Storage and Distribution

Implementing Solutions for Infrastructure Renewal

Aging infrastructure with pipes that act as a source for contamination or are in poor condition, threaten the ability of a utility to supply water and can place the public at risk. Through the replacement of unlined cast iron mains that are heavily tuberculated or aging ductile mains that have lost their iron, AECOM minimizes leaks, removes biofilm that can harbour bacteria or can exert a disinfectant demand, and can include work to replace lead services.

As the system is re-built, we take the opportunity to "right size" the pipes and improve water age and pressures, particularly in systems that have

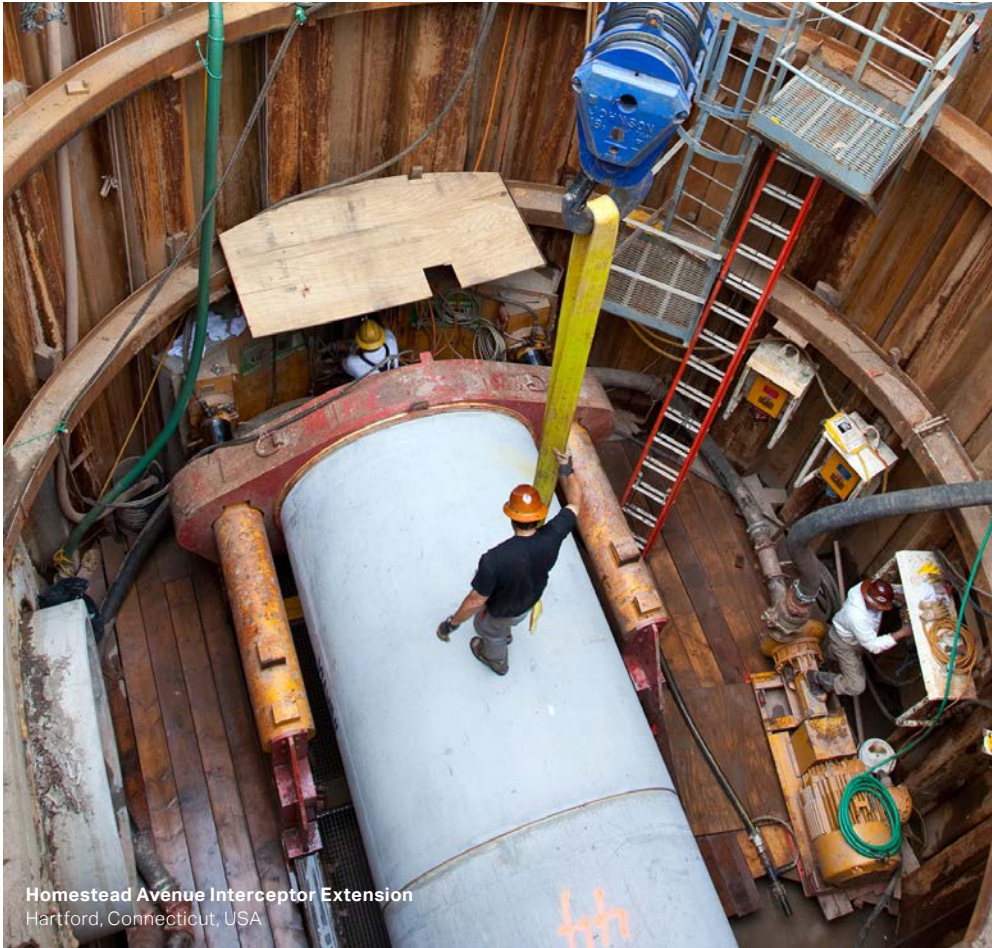
experienced significant changes in population of growth and decline. The result is dependable and safe drinking water supply for utilities and their customers.

Optimizing the Distribution System to Protect Public Health

Further, we work with utilities to provide the tools and strategies they need to successfully manage the distribution system to promote water quality during design, operations, and maintenance.

In Toledo, Ohio, AECOM is serving as construction manager responsible for more than 60 projects ranging in size from \$1 million to \$90 million. The work includes the rehabilitation of reservoirs, raw water mains, pump stations and expansion of a water treatment plant from 40-MGD to 120 MGD.

Tunnels, Conveyance, Collection and Distribution



Homestead Avenue Interceptor Extension
Hartford, Connecticut, USA



From top:
Government Cut Force Main Replacement
Miami, Florida, USA
Bowness Sanitary Offload Trunk
Calgary, Alberta, Canada



Twin Force Main Relocation
Horizontal Directional Drilling
Harbor Crossing
New Haven, Connecticut, USA

To minimize the effects of water scarcity and aging infrastructure, we work on projects to move water where it needs to be, and help our clients prioritize infrastructure improvement and management.

Whether it is wastewater, reuse, potable or raw water for public or industrial clients, we offer a complete set of skills to implement projects that convey this vital resource from remote supply sources, to storage and pumping facilities, to users and back to centralized treatment facilities.

Our comprehensive experience covers tunnels and conveyance pipelines for wastewater facilities, combined sewer overflow control, stormwater runoff and water supply, as well as water intakes and outfalls.

We have completed more than 1,000 miles of tunneling and trenchless technology projects delivered our 400 experts. What sets AECOM apart is our broad experience in tunnel design, supported by our complementary capabilities in specialty areas like hydraulics, flow control and overall tunnel system operating strategies.



River Supply Conduit Tunnel
Los Angeles, California, USA

Backed by years of municipal expertise, we deliver strategies that blend innovation with flexibility to ensure our clients' current infrastructure planning prepares them effectively for the future, especially when funding, schedule or regulatory challenges exist.

An industry leader in integrated project delivery, AECOM offers a full range of services. From initial master planning, condition assessment, design, program/construction management and operational support, we are uniquely positioned to help enhance clients' infrastructure systems.

We have completed more than 1,000 miles of tunneling and trenchless technology projects delivered by our 400 experts.

From top:
Garrett A. Morgan Water Treatment Plant
Cleveland, Ohio, USA
Dugway South Relief and Consolidation Sewer
Cleveland, Ohio, USA



Dams, Hydropower and Levees



Glines Canyon Dam Removal Washington, USA

AECOM's work for the National Park Service at Glines Canyon in the State of Washington, USA, was the world's largest dam removal project in 2014, according to National Geographic magazine.

We understand the constant challenge of managing, protecting and conserving water resources to meet the needs of communities, agriculture, industry and the environment.

AECOM is a recognizable leader in dams, hydropower and levees, having worked on thousands of projects, including many of the world's most iconic structures. We offer solutions in almost every aspect of engineering, from performing feasibility studies through design and construction, commissioning, monitoring, maintenance and retrofits.

Our dam specialists bring a proven track record in all types of design, including homogeneous and zoned earthfill, rockfill, CFRD; ACRD, RCC, mass concrete, concrete buttress and concrete arch. With a specialty in dam and levee safety, we rehabilitate existing dams and levees and repair a wide variety of flood risk management systems.



From top left:
Lake Travis Raw Water Intake
 Austin, Texas, USA

Urban and Non-Urban Levee Evaluations for the California Department of Water Resources
 Sacramento, California, USA

La Grande Hydroelectric Powerhouse (1,368 MW)
 Quebec, Canada

Our hydropower experts have designed and constructed all types and sizes of plants, with capacities of up to 12,600 mega-watts (MW) and heads from 21 to 2,165 feet. We bring significant experience in greenfield developments, as well as rehabilitation of existing facilities, for both conventional hydro and pumped storage schemes.

For more than 60 years, AECOM has been involved with all aspects of levee systems, including risk assessment and management, performance evaluation studies, system integrity, inspections and design.

Watershed and Ecosystem Management



From top:
Watershed Management Plans
San Francisco, California, USA
Mill Creek Dam Removal and Stream Restoration
Dexter, Michigan, USA

Buffalo Bayou Flood Damage Reduction and Bank Stabilization Houston, Texas, USA

AECOM provided planning and investigation as part of a general re-evaluation study of a federal flood damage reduction project on the Buffalo Bayou main channel and White Oak Bay in Harris County, Texas.

Sustainable watershed and ecosystem management involves providing adequate water resources for the aquatic ecosystem while protecting against flood damage, erosion, water quality and many other impacts. Through the application of adaptive management principles in the planning and design process, we integrate science and management, delivering the most targeted solution possible. Our staff analyzes engineering and construction feasibility as well as the regulatory, ecological, social and economic impacts of potential strategies.

AECOM has extensive experience handling the complexity of regulatory

and legal issues and all the technical aspects of stormwater, watershed and ecosystem management. We specialize in applying the most state-of-the-art and innovative field, data, and GIS-based analyses and decision making processes in the initiation of resource protection and use.

AECOM's green infrastructure philosophy is simple—develop effective, replicable, resilient and maintainable designs that are informed by the needs of stakeholders and our clients. Our experienced professionals have the insight and knowledge to develop watershed plans and site-specific projects that work within the context of their environment.



Coastal

Recent studies have confirmed that the majority of our human population is concentrated along or near coasts.

AECOM helps communities and businesses understand, maintain and design sustainable coastal environments throughout the world. Our coastal engineering experts use high-tech models and monitoring devices to analyze the forces affecting coastal environments including sea level rise, tides, erosion, waves and storm surges.

This knowledge provides the basis for innovative designs for sustainable coastal structures and nature-based applications that we have developed for coastal areas.

Stormwater

Stormwater management is an increasingly important, yet complex task. To balance competing goals, an array of regulations have been, and continue to be, developed. AECOM staff are skilled at handling the complexity of regulatory and legal issues and all technical aspects of stormwater issues. We provide all phases of environmental and engineering expertise related to stormwater—from study, site assessment, planning, environmental and other regulatory permitting, to design, construction and training for ongoing monitoring and operations and maintenance of facilities.

With expertise encompassing all phases of the water cycle, AECOM develops strategic long-range solutions to protect the natural environment and provide sustainable water for generations to come. We help you overcome increasingly complex issues involving water shortages, stormwater, flooding and climate change to develop resilient communities.

Industrial Treatment



Wastewater Treatment Plant Upgrade Gulf Coast, USA

AECOM provided conceptual, preliminary, and detailed engineering services as well as construction management for this major U.S. Gulf Coast refinery for a large wastewater treatment plant upgrade that included new API separators, DGF units, equalization tanks, a moving bed bioreactor system for carbon and ammonia reduction, as well as other ancillary unit operations.

Driving economies around the world, industry is pivotal to a sustainable future by creating wealth, building knowledge and meeting needs. Industry is also faced with increased regulatory requirements, aging water and wastewater infrastructure, water scarcity and operational challenges.

We offer industrial water and wastewater services across a variety of market sectors including—oil and gas, power, renewables, pharmaceuticals, chemical, general manufacturing, food and beverage, mining, metal finishing, water utilities, and pulp and paper products, to name a few.

AECOM helps our industrial clients treat their water supplies to produce high purity water where needed for food and beverage production or the manufacturing of high tech products, boiler feed water for steam production, and other utility needs such as cooling applications.

For those in charge of industrial utilities, implementing reliable and cost-effective solutions for managing process water, wastewater and stormwater and associated residuals, are core business priorities and key to competitive advantage in the market place.



From water supply sourcing, conveyance, storage, and treatment to wastewater and stormwater management, reuse and residuals handling, we thrive on delivering unique project solutions for our clients most challenging concerns. In complex industrial applications, where corrosive and explosive environments exist, our engineers meet the most stringent specifications for design and construction to protect client assets and the health and safety of their workers and the surrounding community.

With approximately 6,500 water professionals located across the world, we provide seamless delivery of industrial water and wastewater management services.

From top left:
EPC Services for Southern Mississippi Electric Power Association
 Hattiesburg, Mississippi, USA

Pork Processing Facility Design and Contract Administration, HyLife Foods
 Neepawa, Canada

Wastewater Treatment Plant Design-Build, Tyco Fire & Building Products, Inc.
 Lubbock, Texas, USA

Confidential Client
 Gulf Coast, USA
We provided river water treatment for cooling and boiler feed water needs as well as EPCM services for a major upgrade to this refinery's wastewater treatment system.

About AECOM

AECOM is the world's trusted infrastructure consulting firm, delivering professional services throughout the project lifecycle – from planning, design and engineering to program and construction management. On projects spanning transportation, buildings, water, new energy and the environment, our public- and private-sector clients trust us to solve their most complex challenges. Our teams are driven by a common purpose to deliver a better world through our unrivaled technical expertise and innovation, a culture of equity, diversity and inclusion, and a commitment to environmental, social and governance priorities. AECOM is a *Fortune 500* firm and its Professional Services business had revenue of \$13.3 billion in fiscal year 2021. See how we are delivering sustainable legacies for generations to come at aecom.com and [@AECOM](https://twitter.com/AECOM).