

THE A&E SYSTEM

Public Works and Private Interest
in Architectural and Engineering
Services, 2000–2020



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THE A&E
SYSTEM

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The Temple Hoyne Buell Center for the Study of American Architecture was founded in 1982. Its mission is to advance the study of American architecture, urbanism, and landscape. Located within the Graduate School of Architecture, Planning, and Preservation at Columbia University, it sponsors programs and research projects focusing on issues of both scholarly and general interest. See buellcenter.columbia.edu.

This resource was produced as a part of “Power: Infrastructure in America,” a multiyear research project conducted by the Temple Hoyne Buell Center for the Study of American Architecture. POWER challenges participants to think about how infrastructure relates to life across a series of intersecting concerns, including democratic governance and climate justice. See power.buellcenter.columbia.edu.

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Special thanks go to the Buell Center Advisory Board, and to colleagues who provided valuable insight, including participation in an early workshop on this undertaking: Aaron Cayer, Mary Kimball, and Meredith TenHoor. Daniel Becerril and Priya Bond were crucial for the production of the related videos “[Infrastructures of Austerity](#)” and “[Environment and Eviction](#),” and it was a pleasure to work with them. Finally, we’re grateful to Amelyn Ng, whose essay “[Beyond Business as Usual: BIM and the Future of Public Works](#)” was written while research for this document was underway and informed its development.

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INTRODUCTION



Streets flooded in San Juan, Puerto Rico following Hurricane Maria in 2017 (Sgt. Jose Ahiram Diaz-Ramos/Puerto Rico National Guard via U.S. Department of Defense)

Introduction

Who will design and manage the green infrastructure needed to combat climate change? In the United States today, whether this infrastructure is financed publicly or privately, it would most likely be designed and managed by public-private partnerships led by large architecture and engineering (A&E) firms, or what we call here the “A&E System.” What, then, does architecture look like when studied through this system? What does this way of thinking reveal about the professional, social, and economic complexities of the interconnected crises of mutual care, racial oppression, and climate? And what part do architects truly play?

Systems hide. Accordingly, these questions are not easy to answer. With this document—a resource for students, teachers, and professionals in the arts and sciences of the built environment—the Buell Center offers a

provisional portrait of the A&E System. This system's power is well established and diffuse, which makes it both important and difficult to understand.

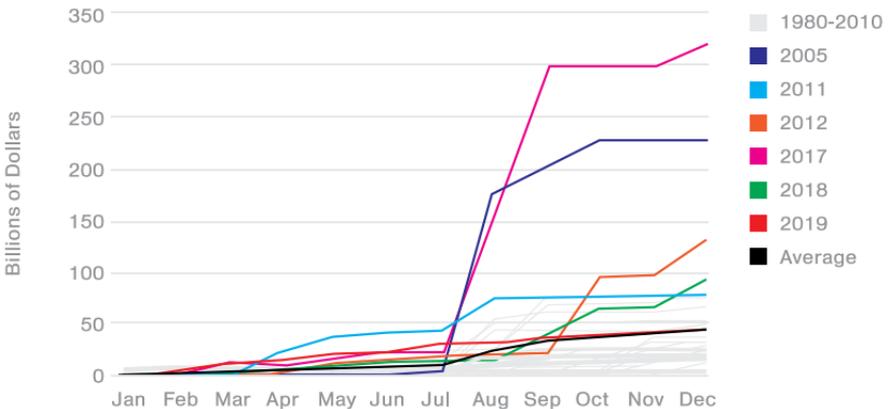
Educational and professional institutions supporting this system, however, have tended to shy away from this critical task in favor of a narrow understanding of the disciplines of the built environment and their cultural and technical agency. Some aspects of the A&E System, which stretches from small, locally focused firms to those engaged in massive, multinational projects, will therefore be recognizable to readers, while others might seem less familiar, or perhaps even unrelated. Our archive is limited to publicly accessible materials such as federal procurement data, annual reports, corporate websites, and advertising. The picture presented here is therefore incomplete. Nevertheless, it offers sufficient data and depth to grasp the system's main contours.

In the United States, the most direct way to answer the questions initially laid out is to follow the money, by analyzing spending data on what the federal government labels as architecture. The North American Industry Classification System (NAICS) is the federal coding standard used “for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.” Since 1997, large federal infrastructure projects are predominantly classified, at least in part, as Architectural Services (541310) and Engineering Services (541330). NAICS Code 541310 is defined as follows: “This industry comprises establishments primarily engaged in planning and designing residential, institutional, leisure, commercial, and industrial buildings and structures by applying knowledge of design, construction procedures, zoning regulations, building codes, and building materials.”¹

For the United States government, this is architecture. And considering the federal government’s procurement power, the prevalence of public-private partnerships, and the hiring out of design and management to private firms, this matters.

The relevance of this definition is made especially clear by the increasing number of climate-related disasters requiring federally funded mitigation and response efforts, long-stalled infrastructure packages, and heated debates about a “Green New Deal,” “Green Stimulus,” or even “Green Reconstruction.”

1980–2019 United States Disaster Event Cost (Consumer Price Index-Adjusted)²



Beginning in 2017, a team of Graduate Research Assistants at the Buell Center produced two short videos, which outlined key facts and timelines surrounding Hurricane Katrina in New Orleans, Louisiana, and the ongoing water equity crisis in Flint, Michigan. These videos, “Environment and Eviction” and “Infrastructures of Austerity,” crisscrossed the public and private realms, connecting infrastructure, environmental emergency, and anti-democratic governance that this document continues to connect.

In addition to their proceeding under Emergency Management, the responses to the damage wrought by Hurricane Katrina in and around New Orleans and to the lead poisoning of thousands of residents in Flint had something else in common: a company called AECOM. In Flint, the architecture and engineering giant was hired to scale up and accelerate lead pipe replacement, but the

company's involvement had the opposite effect.³ A decade earlier, on the Gulf Coast, over 2,000 Federal Emergency Management Agency (FEMA)–funded AECOM contractors worked on projects ranging from damage assessments, to levee restoration, to the design and construction of an Air Force Base Hospital.⁴ Far from unique, AECOM is emblematic of the A&E System. “Architectural and Engineering Services,” contracted from private industry by government entities, refers to the design and management of public projects of all types and scales across the United States and beyond its borders.

Following federal funds—public money—through architecture and into private hands, this document breaks down the often rigid material and imaginative boundaries that are established between these realms. It works within the dash in “public-private partnerships,” represented here by publicly

financed infrastructures designed and managed by private firms, as it asks: Where is the public in Fluor's restoration of transmission lines in Puerto Rico following Hurricane Maria? How are competing interests adjudicated across sovereignties and generations in the planning, design, and eventual construction of the Champlain Hudson Power Express Transmission Line in Quebec and New York? How to assign responsibility in the chain of events that links the extraction of coal, its burning by the Tennessee Valley Authority at the TVA's Kingston plant, that plant's subsequent coal ash spills, Jacobs Engineering's contracted cleanup, and the eventual deaths of at least forty of Jacobs's workers?⁵

As these examples illustrate, climate change changes more than just climate. The design and management of the built environment are central to these changes. The goal of the

research documented here has therefore been to better understand structures that operate not only in response to environmental crises, but also before, during, and after them—structures that may well contribute to these crises’ most harmful effects.

The image of the A&E System that emerges remains partial, but in the United States it has four operating principles that have loosely structured the last two decades of its power:

Privatization of public services is policy.

- Most directly stated through policies for emergency response, federal strategic plans encourage “strong partnerships that leverage capabilities and capitalize on public-private efficiencies.”⁶

Open-ended contracts are preferred.

- Following public scrutiny of federal contracts after Hurricane Katrina, agencies turned toward expanded use of larger, open-ended contracts. These types of contracts are seen as aiding in the quick deployment of goods and services when urgently needed. This preference impacts the size and scope of contracts as public funds are filtered into fewer awards, among fewer companies, in larger amounts.⁷

Structural advantage is given to large firms.

- These open-ended contracts often include terms unfavorable to small or medium-sized businesses. Further, established Federal Acquisition Regulation (FAR) guidelines expressly prefer hiring larger businesses that have been contracted previously. This frequently presupposes joint ventures between firms with differing specialties, or the subcontracting of smaller, local firms while

the large companies maintain the federal contract.⁸

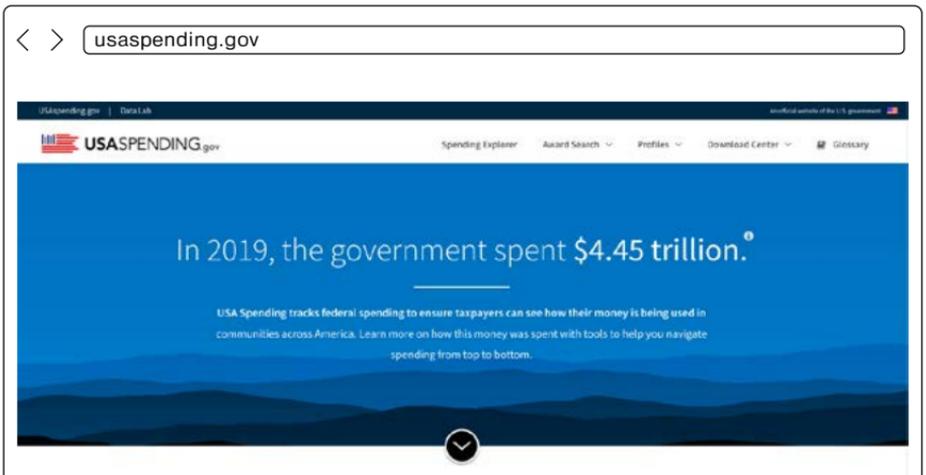
Transparency is required, though results often run counter to this goal.

- Also after Hurricane Katrina, and mandated under the Federal Funding Accountability and Transparency Act of 2006 (FFATA), increased transparency became a key federal directive, requiring reporting and justification for various federal expenditures. One notable outcome was the launch of USAspending.gov, an official source of spending data for the US government that gathers information from various federal databases. The website's mission statement begins: "Building a more transparent government." Signed into law on September 26, 2006, the FFATA requires that "federal contract, grant, loan, and other financial assistance awards of more than \$25,000 be displayed on a publicly accessible

and searchable website to give the American public access to information on how their tax dollars are being spent.”⁹ The regulation of transparency on the federal level, however, has not been consistently applied, nor has it necessarily encouraged similar patterns at the state and local levels or in the private sector where much of the actual work has been contracted.

This publicly accessible and searchable website—USAspending.gov—forms the backbone of the research documented here. Looking past its animated data visualizations and clickable map filters, the Buell Center team has culled detailed budget information for large federal contracts, from “parent” recipients to subcontractors, and change orders to joint ventures. Researchers have attempted at all times to use this information to reconstruct the system to which it belongs, a system that is ever-changing with current

events, shifting political priorities, and fluid data sets. The data generally stretch from 2000 through 2019, filling out a picture of the system over the course of two decades. As is often the case with web-based research, some links are no longer active or accessible. Therefore, as a navigational aid for curious readers we have compiled a guide to USAspending.gov, and we encourage those readers to continue the project for themselves.¹⁰



The USAspending home page

Operating according to its four principles, the A&E System exerts an ever greater influence over the built environment, without a related increase in public understanding of its implications and consequences. The now-common label of AEC, which brings construction into the architecture and engineering frame, has gained industry prominence under similar circumstances. With an eye to the education of design professionals, the Buell Center has focused on how architecture and engineering have fused within the A&E System; which firms, people, and projects are included in the system's categorizations; and which interests are left out.

The companies listed in the pages that follow have been identified based on various factors documented on USAspending.gov, including the number versus the size of contracts; contracts awarded in a disaster

versus a non-disaster context; and contracts sorted by awarding agency. The data show that when filtering with these controls, as well as through the broad category of Architectural Services (NAICS code 541310), five companies consistently emerge: Fluor Corporation, AECOM, HDR Inc., Jacobs Engineering Group, and Zimmer Gunsul Frasca Architects LLP (ZGF).¹¹

Recipients of Greatest Cumulative Amount in Architecture: NAICS code 541310
Federal Funding, 2000 to 2019¹² (Limited to firms currently active)

Recipient Parent Name	Cumulative Amount Obligated, Architectural Contracts 2000–2019
Fluor Corporation	\$1,430,676,506.00
AECOM	\$591,727,543.40
HDR Inc.	\$418,082,032.90
Jacobs Engineering Group	\$404,662,492.70
Johns Hopkins University	\$333,139,457.30
Smithgroup Companies, Inc.	\$224,481,254.40
Burns & McDonnell, Inc.	\$163,362,811.10
Leo A Daly Company	\$148,621,211.20
Zimmer Gunsul Frasca Architects LLP	\$142,768,077.50
NBAF Design Partnership	\$130,154,180.70

In comparison, federal procurement of Engineering Services (NAICS code 541330) reveals much higher amounts obligated, and different companies appear in the top ten list. Among the top thirty recipients, however, two names also prominent on the architectural services list appear: AECOM and Jacobs.

Recipients of Greatest Cumulative Amount in Engineering: NAICS code 541330
Federal Funding, 2000 to 2019¹³ (Limited to firms currently active)

Recipient Parent Name	Cumulative Amount Obligated, Architectural Contracts 2000–2019
Manufacturing Technical Solutions, Inc.	\$32,249,662,274.60
The MITRE Corporation	\$25,291,721,454.40
Lockheed Martin Corporation	\$23,698,095,847.78
Leidos, Inc.	\$22,912,568,395.43
General Dynamics Corporation	\$18,685,706,320.58
CACI International, Inc.	\$11,755,401,376.71
Bowhead Professional Solutions, LLC	\$11,752,709,376.97
NCI Information Systems, Inc.	\$11,497,083,969.00
BAE Systems Science & Technology, Inc.	\$10,007,776,712.41
Science Applications International Corporation	\$8,985,182,120.88
...	
Jacobs Engineering Group Inc	\$5,174,659,452.82
...	
AECOM	\$2,546,226,129.99

Accordingly, to look beyond the numbers and better understand this system by taking it at face value, the Buell Center research team has highlighted five prominent companies—with an emphasis on architectural services—selected to portray a range of characteristics, techniques, and perspectives. Together with the company profiles, the Buell Center team has also analyzed one built or planned case study from each company, details on which appear throughout this document. While not commonly studied or critiqued in professional schools of design, this too is architecture.

The firms and case studies are:

AECOM

AECOM¹⁴

Status	Publicly traded
Headquarters	California
Founded	1990
Number of Employees	90k
2018 Revenue	\$20.2 billion

AECOM is a US multinational engineering firm that traces its origin to the early twentieth century. Growing out of Ashland Oil and Refining Company, a Kentucky-based chemical company, AECOM was established after the merger of five engineering and architecture firms in 1990. Now based in Los Angeles, AECOM serves both public and private clients in over 150 countries. In 2019, the company was ranked #1 in *Engineering News-Record's* “Top 500 Design Firms” in transportation and general building.¹⁵ Some of AECOM’s major projects include: One World Trade Center (New York); Crossrail, the largest construction project in Europe at the time of its construction in 2018 (London); the 2016 Rio Olympic and Paralympic Games; and Amazon’s Delivery Stations.¹⁶

Case Study: U.S. Army Pacific Mission Command Facility



AECOM's proposed design for the Mission Command Facility (AECOM)

- **Contract type:** Definitive Contract
- **Contract amount:** \$39.4 million
- **Funding agency:** Department of Defense (DOD)
- **NAICS code:** 541330 | Engineering Services¹⁷
- **Project timeline:** 2009–2023
- **Location:** Fort Shafter, Hawaii

AECOM is the prime consultant and lead designer for the Mission Command Facility at Fort Shafter, Hawaii. The facility, designed for the U.S. Army Pacific (USARPAC) and estimated for completion in 2023, aims to “consolidate outdated, scattered facilities in an integrated, secure, technologically-advanced complex.”¹⁸ AECOM’s work on the project, in partnership with the U.S. Army Corps of Engineers, includes both architectural design and master planning, as well as “advanced structural, mechanical, security, and communications components [and] site improvements, landscape design, and infrastructure.”¹⁹ The design, described by AECOM as integrating “organically into the descending slope of a picturesque hillside,” is for a 357,000-square-foot complex that includes a communications hub, central utility plant, operational, support, administrative, and command wings, a central arrival facility with a commander’s briefing

room, an electrical substation, and parking for more than 900 vehicles.

Click below for more on this case's:

- Regulators >
- Managers >
- Stakeholders >
- Stewards >

FLUOR

FLUOR²⁰

Status	Publicly traded
Headquarters	Texas
Founded	1912
Number of Employees	53k
2018 Revenue	\$19.2 billion

Fluor Corporation was founded in California in 1912 by John Fluor as a family construction

business, and is headquartered in Irving, Texas. By the 1920s, the company began incorporating energy projects into its portfolio. Fluor's first contract with the US government was a material testing reactor in Idaho, in the late 1940s. In April 2020, CEO Carlos Hernandez was named to the Trump Administration's "Great America: Construction/Labor/Workforce" committee.²¹

Case Study: Temporary Housing Solutions in response to Hurricanes Katrina and Rita



A sticker in the window of a temporary housing unit reads "NOT TO BE USED FOR HOUSING" (Nick Shapiro)²²

- **Contract type:** Basic Ordering Agreement / Child contract: Delivery Order Contract²³
- **Contract amount:** \$1.38 billion / Child contract: \$873 million
- **Funding agency:** Department of Homeland Security, FEMA
- **NAICS code:** 541310 | Architectural Services
- **Project timeline:** 2005–2011
- **Location:** Wyoming, Louisiana, Texas, and Florida²⁴

Between 2005 and 2017, Fluor entered into a \$1.38 billion architectural services contract with FEMA for “personnel, materials, services, equipment, and facilities to provide temporary housing solutions and related services in response to natural and man-made disasters.” This “parent” contract has twenty-two sub-contracts, many of which are related to Hurricanes Katrina and Rita. The main “child” contract for this study involved installing and

maintaining FEMA-issued trailers as “temporary housing units” in the aftermath of the disasters. Fluor’s fifty-four thousand temporary trailers, which often became semi-permanent or permanent homes for those displaced, were built with composite wood and plywood panels fabricated using formaldehyde, a known carcinogen. In the aftermath of both disasters, Fluor came under scrutiny for the contract and the associated housing units.²⁵

Click below for more on this case’s:

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HDR

HDR²⁶

Status	Employee owned
Headquarters	Nebraska
Founded	1917
Number of Employees	10k
2018 Revenue	\$2.2 billion

HDR, Inc. is an employee-owned engineering company. The company was founded in 1917 as a civil engineering firm in Omaha, Nebraska, eventually implementing critical infrastructure for the New Deal's Rural Electrification Administration across the US West. The company became employee-owned in 1996. Since then, HDR has grown in capacity through fifty-five acquisitions, increasing its revenue from \$200 million when the employee buyout occurred to \$2.36 billion in 2017.²⁷ Less than 10 percent of HDR's revenue comes from public work. Including government and private sector projects, HDR

is often contracted to work on water, carceral, and healthcare facilities.

Case Study: Walter Reed National Military Medical Center



HDR's proposed renovations at the Walter Reed National Military Medical Center (HDR)

- **Contract type:** Indefinite Delivery / Indefinite Quantity
- **Contract amount:** \$63.4 million²⁸
- **Funding agency:** Department of Defense
- **NAICS code:** 541310 | Architectural Services
- **Project timeline:** 2011–2021 (child contract)
- **Location:** Bethesda, Maryland

The Walter Reed National Military Medical Center rests on the 243-acre Naval Support Activity campus in Bethesda, Maryland. HDR began work on the 533,000-square-foot medical facility in 2011 as part of a Child Award with the Department of Defense (the Parent Award was received in 2009). The project involved demolishing five structures behind Bethesda Naval Hospital Tower and replacing them with a single multistory building. Three additional renovations, including the Bethesda Naval Hospital Tower listed in the National Register of Historic Landmarks, were also included. The designs modernize interior spaces with flexible, modular clinics intended to maintain the historic character of the campus. In 2011, the facility achieved LEED Gold certification.²⁹

Click below for more on this case's:

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JACOBS

JACOBS³⁰

Status	Publicly traded
Headquarters	Texas
Founded	1947
Number of Employees	52k
2018 Revenue	\$14.9 billion

Jacobs Engineering Group, Inc. was founded by Dr. Joseph J. Jacobs in 1947 as a consulting agency and as a manufacturers' representative.³¹ Today, the publicly-traded company provides services around the world that include professional

design, engineering, program management, and project and construction management services. Jacobs is headquartered in Dallas, Texas with Steven J. Demetriou as its CEO. Its major subsidiaries include Jacobs Technology, Inc. and CH2M Hill, which was acquired in 2017.³² Jacobs has been included on *Fortune*'s 500 list of the world's largest companies since 2000.³³

Case Study: Rockaway Revitalization and Storm Resiliency



The Rockaway boardwalk (Jacobs)

- **Contract type: Indefinite Delivery / Indefinite Quantity**
- **Contract amount: \$564.5 million (Parent Contract) / \$43.2 million (Child Contract)**
- **Funding agency: Department of Homeland Security**
- **NAICS code: 541330 | Engineering Services**
- **Project timeline: 2012–2019**
- **Location: Queens, New York**

As one facet of the \$300 million “Rockaway Revitalization and Storm Resiliency” project, Jacobs, the Rockaway Business Alliance (RBA), and WXY were lead designers for the post–Hurricane Sandy replacement Rockaway boardwalk, a five-mile concrete stretch that serves as a protective barrier for the coastal neighborhood, and provides beach access points. Completed in May of 2017, the company called the new boardwalk the “longest and largest resiliency project completed to date by the

City of New York.”³⁴ As a part of the job, Jacobs undertook coastal modeling to determine the compatibility of the boardwalk’s design with the U.S. Army Corps of Engineers’ adjacent beach nourishment and flood protection project. Jacobs’ work ranged from design and water resource management to ecosystem management.

Click below for more on this case’s:

- Regulators >
- Managers >
- Stakeholders >
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ZGF

ZGF³⁵

Status	Privately owned
Headquarters	Oregon
Founded	1942
Number of Employees	588
2018 Revenue	\$153 million

Zimmer Gunsul Frasca (ZGF) Architects LLP was founded in 1942 in Portland, Oregon. ZGF's largest office is in Portland, with additional locations in New York, Seattle, Los Angeles, and Washington, DC. According to the World Market Index, ZGF's top services include architecture, urban design, and interior design.³⁶ The company's main clientele are academic institutions, corporate offices (mixed-use), and research and healthcare centers. In contrast to the other companies selected, ZGF more closely resembles what many students and practitioners might consider a traditional architecture firm. This document nevertheless explains the centrality of a firm like ZGF to the A&E System.

Case Study: St. Elizabeths West Campus



ZGF's proposed design for the St. Elizabeths West Campus (ZGF)

- **Contract type: Definitive Contract**
- **Contract amount: \$491,706 million (July 2010) / \$68.8 million (March 2010–present)**
- **Funding agency: General Services Administration (GSA) and Department of Homeland Security (DHS)**
- **NAICS code: 541310 | Architectural Services**
- **Project timeline: 2010–2022**
- **Location: Washington, DC**

In 2010, ZGF Architects was awarded a \$61 million federal contract by the General Services Administration (GSA).³⁷ ZGF was to be “lead design architect for the new DHS headquarters facilities,” which, according to the GSA, was the largest federal construction project in Washington, DC since the Pentagon.³⁸ “The contract includes designing four new office buildings, an addition to an existing historic building, plus three parking garages and other facilities.”³⁹ The DHS Headquarters Center Building—in what is now known as the “St. Elizabeths West Campus”—was completed in summer 2019.⁴⁰ Meanwhile, a master plan amendment was submitted to the National Capital Planning Commission in May 2020 for approval and a Record of Decision (ROD) was issued by the GSA in September 2020.⁴¹ The campus is expected to be completed by 2026 with an estimated cost of \$4.5 billion.⁴²

Click below for more on this case's:

Regulators >

Managers >

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The bulk of the information on these firms was drawn from the following sources. Secondary, largely journalistic sources were used to supplement where necessary.

AECOM	(publicly traded)	USASpending.gov; reports for shareholders: annual and quarterly reports, etc.; SEC Filing; Sustainability Reports; aecom.com
FLUOR	(publicly traded)	USASpending.gov; reports for shareholders: annual and quarterly reports, etc.; SEC Filing; fluor.com
HDR	(employee owned)	USASpending.gov; Sustainability Reports; hdrinc.com
JACOBS	(publicly traded)	USASpending.gov; reports for shareholders: annual and quarterly reports, etc.; SEC Filing; Sustainability Reports; jacobs.com
ZGF	(privately owned)	USASpending.gov; zgf.com

Information available on USAspending.gov shows the total number of federal contracts for each firm from 2000 through 2019. A certain percentage of the total amount of contracts was designated as A&E through its NAICS code, and further specified as either Architectural Services or Engineering Services.

Federal Contracts (2000–2019)⁴³

AECOM	Total: 18,692 contracts A&E: 9,766 52% of total Architectural Services: 1,427 7% of total Engineering Services: 8,339 45% of total
FLUOR	Total: 1,466 contracts A&E: 520 35% of total Architectural Services: 105 7% of total Engineering Services: 415 28% of total
HDR	Total: 4,691 contracts A&E: 3,611 77% of total Architectural Services: 792 17% of total Engineering Services: 2,819 60% of total
JACOBS	Total: 10,265 contracts A&E: 6,257 61% of total Architectural Services: 1,300 13% of total Engineering Services: 4,957 48% of total
ZGF	Total: 103 contracts A&E: 93 contracts 90% of total Architectural Services: 72 70% of total Engineering Services: 21 20% of total

USAspending.gov shows the top federal agencies that awarded A&E firms contracts during these two decades. Below, these contracts are sorted by number of awards, not their dollar amounts, and for all NAICS codes. The Department of Defense (DOD) is the top awarding agency for four out of the five firms.

Top Awarding Agencies (2000–2019)⁴⁴

Number of awards

AECOM	Department of Defense (DOD)	11,635 contracts
	Department of Energy (DOE)	47 contracts
	National Aeronautics and Space Administration (NASA)	517 contracts
	Department of Homeland Security (DHS)	1,906 contracts
	Agency for International Development (USAID)	61 contracts
	FLUOR	Department of Defense (DOD)
	Department of Energy (DOE)	17 contracts
	Department of Homeland Security (DHS)	421 contracts
	Department of Labor (DOL)	22 contracts
	Agency for International Development (USAID)	1 contract
HDR	Department of Defense (DOD)	2,929 contracts
	Department of the Interior (DOI)	746 contracts
	Department of Veterans Affairs (VA)	184 contracts
	Department of Transportation (DOT)	407 contracts
	Environmental Protection Agency (EPA)	7 contracts

JACOBS	Department of Defense (DOD)	6,623 contracts
	Department of Energy (DOE)	19 contracts
	National Aeronautics and Space Administration (NASA)	906 contracts
	Department of Homeland Security (DHS)	252 contracts
	Environmental Protection Agency (EPA)	342 contracts
	ZGF	Department of State (DOS)
	General Services Administration (GSA)	2 contracts
	Department of Defense (DOD)	21 contracts
	Department of Veterans Affairs (VA)	7 contracts
	Department of Health and Human Services (HHS)	3 contracts

Sorted by the A&E NAICS code, below are the top awarding agencies for the five firms from 2000 through 2019. The chart shows both the number of awards as well as the amount distributed.

Top Awarding Agencies, Architecture & Engineering Services (2000–2019)⁴⁵

Number of Awards and Amount Obligated

AECOM (9,766)	Department of Defense (DOD)	6,555	\$7,239,529,273
	Department of Homeland Security (DHS)	1,656	\$1,311,414,813
	General Services Administration (GSA)	333	\$209,955,766
	National Aeronautics and Space Administration (NASA)	135	\$264,791,574
	Department of Transportation (DOT)	132	\$156,731,476

FLUOR (520)	Department of Homeland Security (DHS)	372	\$2,455,499,065
	Department of Defense (DOD)	146	\$71,735,397
	Department of State (DOS)	1	\$70,237
	Department of Energy (DOE)	1	-\$239,202
HDR (3,611)	Department of Defense (DOD)	2,067	\$1,284,276,767
	Department of Veterans Affairs (VA)	179	\$130,549,912
	Department of the Interior (DOI)	677	\$119,311,038
	Department of Transportation (DOT)	382	\$62,858,205
	National Aeronautics and Space Administration (NASA)	27	\$22,913,328
JACOBS (6,257)	Department of Defense (DOD)	4,191	\$5,341,712,556
	National Aeronautics and Space Administration (NASA)	415	\$3,567,518,319
	Department of Homeland Security (DHS)	123	\$683,505,885
	Department of Transportation (DOT)	548	\$489,499,697
	General Services Administration (GSA)	201	\$443,401,447
ZGF (93)	Department of State (DOS)	62	\$87,669,371
	General Services Administration (GSA)	2	\$52,669,753
	Department of Defense (DOD)	21	\$38,930,871
	Department of Veterans Affairs (VA)	7	\$6,399,310
	Department of Health and Human Services (HHS)	1	\$246,200

The tables on the following pages show the top awarding agencies for Architectural Services and Engineering Services, separately from 2000 through 2019, with a detailed view of the number of awards and total amounts obligated.

Top Awarding Agencies, Architecture Services (2000–2019)⁴⁶

Number of Awards and Amount Obligated

AECOM (1,427)	Department of Defense (DOD)	1,011	\$312,630,718
	[Note: 22 IDIQ contracts]		
	National Aeronautics and Space Administration (NASA)	19	\$212,776,565
	[Note: 5 IDIQ contracts]		
	General Services Administration (GSA)	70	\$114,125,728
	[Note: 2 IDIQ contracts]		
	Department of Veterans Affairs (VA)	114	\$49,593,338
	[Note: 42 IDIQ contracts]		
	Department of State (DOS)	28	\$25,709,752
<hr/>			
FLUOR (105)	Department of Homeland Security (DHS)	105	\$1,430,676,506
	[Note: FEMA - 0 IDIQ Contracts] ⁴⁷		
<hr/>			
HDR (792)	Department of Defense (DOD)	390	\$284,140,495
	[Note: 6 IDIQ contracts]		
	Department of Veterans Affairs (VA)	154	\$124,788,156
	[Note: 35 IDIQ contracts]		
	National Aeronautics and Space Administration (NASA)	27	\$22,913,328
	[Note: 11 IDIQ contracts]		
	Department of the Interior (DOI)	107	\$12,598,891
	[Note: 7 IDIQ contracts]		
	Department of Treasury (TREAS)	40	\$5,371,420

JACOBS (1,300)	Department of Defense (DOD) [Note: 46 IDIQ contracts]	687	\$349,164,924
	Department of Treasury (TREAS)	282	\$109,813,901
	General Services Administration (GSA) [Note: 6 IDIQ contracts]	95	\$37,926,095
	National Aeronautics and Space Administration (NASA) [Note: 12 IDIQ contracts]	14	\$15,301,459
	Department of Veterans Affairs (VA) [Note: 54 IDIQ contracts]	96	\$10,738,930
	ZGF (72)	Department of State (DOS)	62
	General Services Administration (GSA)	2	\$52,669,753
	Department of Veterans Affairs (VA)	7	\$6,399,310
	Department of Health and Human Services (HHS)	1	\$246,200

Top Awarding Agencies, Engineering Services (2000–2019)⁴⁸

Number of Awards and Amounts Obligated

AECOM (8,339)	Department of Defense (DOD) [Note: 177 IDIQ contracts]	5,544	\$6,926,898,555
	Department of Homeland Security (DHS) [Note: 195 IDIQ contracts]	1,655	\$1,311,374,813
	Department of Transportation (DOT) [Note: 1 IDIQ contract]	129	\$154,886,489
	Agency for International Development (USAID) [Note: 2 IDIQ contracts]	16	\$127,808,123
	Department of Health and Human Services (HHS)	136	\$133,588,36

FLUOR (415)	Department of Homeland Security (DHS) [Note: FEMA - 12 IDIQ contracts]	267	\$1,024,822,559	
	Department of Defense (DOD)	146	\$71,735,397	
	Department of State (DOS)	1	\$70,237	
	Department of Energy (DOE)	1	-\$239,202	
HDR (2,819)	Department of Defense (DOD) [Note: 49 IDIQ contracts]	1,677	\$1,000,136,272	
	Department of the Interior (DOI) [Note: 8 IDIQ contracts]	570	\$106,712,146	
	Department of Transportation (DOT) [Note: 77 IDIQ contracts]	382	\$62,858,205	
	Department of Agriculture (USDA) [Note: 5 IDIQ contracts]	53	\$5,660,848	
	Department of Veterans Affairs (VA) [Note: 6 IDIQ contracts]	25	\$5,761,756	
	JACOBS (4,957)	Department of Defense (DOD) [Note: 16 IDIQ contracts]	3,504	\$4,992,547,631
		National Aeronautics and Space Administration (NASA)	401	\$3,552,216,859
Department of Homeland Security (DHS)		122	\$679,163,935	
Department of Transportation (DOT) [Note: 1 IDIQ contract]		546	\$487,429,182	
General Services Administration (GSA)		106	\$405,475,352	
ZGF (21)		Department of Defense (DOD)	21	\$38,930,871

For publicly-traded companies, firm revenue is listed in their annual reports, whereas private firms' annual revenue can be gleaned from third-party websites such as Owler. This next table shows each firm's overall revenue

for 2018 in comparison to the cumulative dollar amount obligated for its A&E services work in that same year.

2018 Overall Revenue vs. 2018 A&E Cumulative Amount Obligated for Federally-Funded Projects

AECOM	(\$20.2 billion) ⁴⁹	A&E: \$1,081,918,634
FLUOR	(\$19.2 billion) ⁵⁰	A&E: \$108,024,888
HDR	(\$2.2 billion) ⁵¹	A&E: \$154,091,778
JACOBS	(\$14.9 billion) ⁵²	A&E: \$535,349,143
ZGF	(\$153 million) ⁵³	A&E: \$2,759,024

Mergers and acquisitions are an important part of the A&E System. On the next page are some details about the selected firms' significant mergers and acquisitions between 2000 and 2019.

Significant Mergers and Acquisitions

AECOM (publicly traded)	2014: AECOM acquires URS for \$4 billion ⁵⁴ 2017: AECOM acquires Shimmick for \$175 million ⁵⁵
FLUOR (publicly traded)	2015: FLUOR acquires Stork Holding for \$755 million ⁵⁶
HDR (employee owned)	2019: HDR acquired Hurley Palmer Flatt ⁵⁷
JACOBS (publicly traded)	2017: Jacobs acquires CH2M Hill for \$2.85 billion ⁵⁸ 2019: Jacobs acquires KeyW for \$815 million ⁵⁹
ZGF (privately owned)	-

Similarly, joint ventures play a key role in the A&E System, often tied directly to specific projects or bids on contracts. Notable joint ventures during this time period, pulled from USAspending.gov, are:

Joint ventures⁶⁰

AECOM (90,000 employees)	Aecom-B&V Usace Med Satoc Aecom Smith Carter Jt4 LLC URS / CH2M Oak Ridge LLC Aecom + Tetra Tech URS Group Inc-Hartman Cox Architects LLP Aecom-Energy Solutions Aecom-Inquip Smith Group + URS DMJM Design / Mcclier URS Berger Aecom-Envirocon
FLUOR (53,000 employees)	Fluor-BWXT Portsmouth LLC Brady-Fluor, LLC
HDR (10,000 employees)	HDR Obrien & Gere HDR-Bergmann HDR-CH2M HDR-CMT HDR-Gannett Fleming
JACOBS (52,000 employees)	CH2M-Burns & Mcdonell CH2M Hill-HDR Jacobs / Facility Dynamics Engineering
ZGF (588 employees)	ZGF-Leo A Daly ZGF / AEI / KPFF

At the time of writing, new projections and economic reports adjusted for the A&E impacts of COVID-19 had not been publicly

released. While forecasts will undoubtedly be affected dramatically by a global economic “pause,” the sector has been built to respond to crisis. A&E firms are valued for their expertise in resilience. The value, and influence, of the industry is evident in the fact that construction generally proceeded as “essential” work in the United States during the initial phases of the shutdown. As calls for an infrastructure stimulus mount, and new health and care facilities may need to be built, the A&E System is poised to receive and manage those contracts.

The chapters that follow are organized within this historical frame, with the relationship between the “who” of procurement and the “what” of architecture in mind. By highlighting specific actors—identified here as regulators, managers, stakeholders, and stewards—the chapters foreground the agency and responsibility of individuals, firms, and institutions

in shaping the built environment. The A&E System in which these actors play a part is complex, as are the built forms it generates. Nonetheless, it remains the responsibility of architects and other professionals of the built environment to understand how that system works. The first step toward systemic change is recognizing the system.

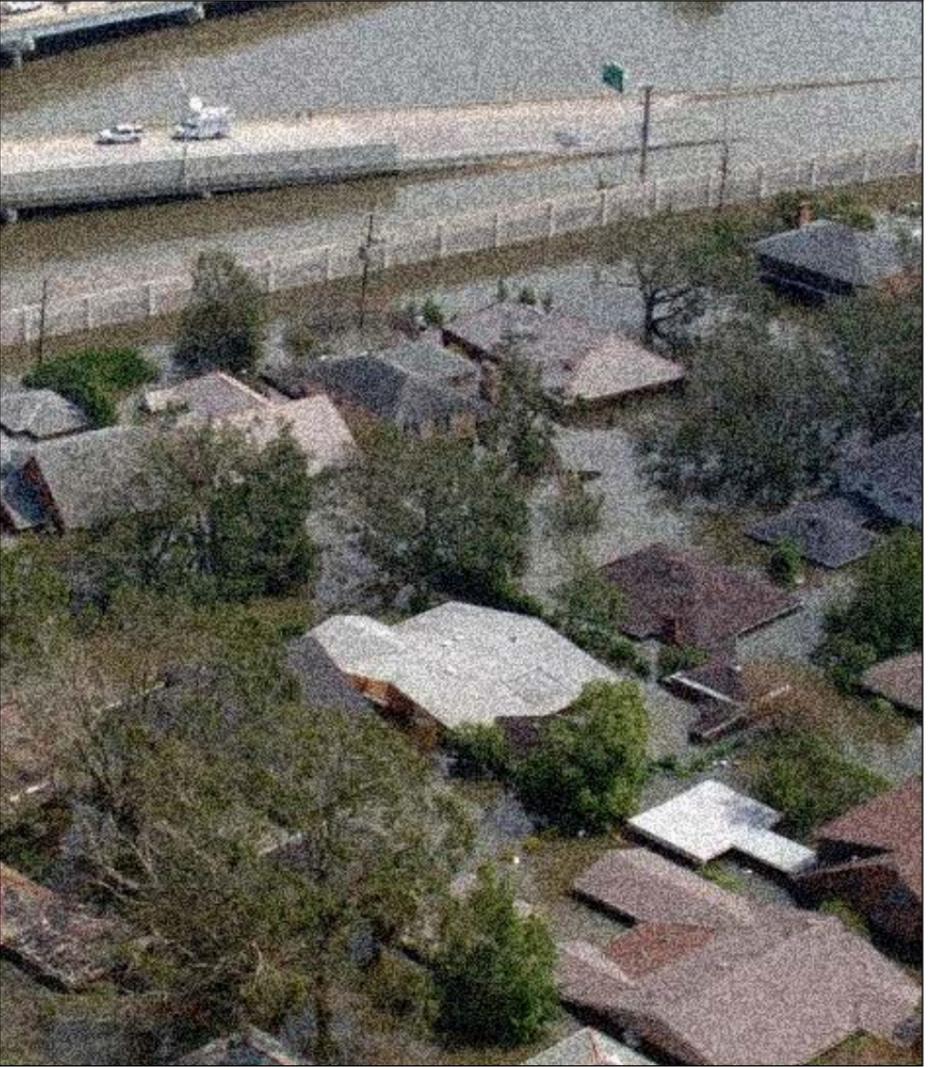
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REGULATORS



Aerial photograph of New Orleans on August 30, 2005 after Hurricane Katrina (Jocelyn Augustino, FEMA)



Regulators

Who, and what, shapes the A&E System?

Federally contracted A&E firms follow frameworks established by governmental and nongovernmental actors who write federal policies. Recent disasters, in particular Hurricane Katrina, have led to changes in some of these policies. In addition to being guided from within government, the legislative processes that yield these policies are also influenced by lobbyists, often hired by the A&E firms themselves. These efforts affect legislation—along with the contracts and projects that develop thereafter—in ways that have tended to favor the priorities of large companies.

There are several key pieces of legislation that directly shape the A&E System. One of the most notable is the 1988 Stafford Act and its ensuing amendments.



FEMA P-592: Stafford Act, 1988¹

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act) dictates how the federal government responds to emergencies and disasters.

Key provisions:

Define two types of incident levels

- Emergencies: smaller events in which limited federal assistance supplements state/local efforts
- Major disasters: larger-scale events, such as a powerful hurricane or earthquake
- Only the president can declare an event an emergency or a major disaster.

Establish a federal process for declaring disasters

- The governor of the state that is impacted by a major event determines whether or not the state has the resources to handle the



disaster. If state officials assess that they do not have adequate resources, they must ask the president for help and inform the president of the resources the state is able to commit.

Provide federal government assistance to state and local governments

- Assistance includes food, shelter, financing, and the repair of physical damage. For major disasters, long-term recovery loans to individual small businesses are capped at \$2 million.² FEMA will cover up to 90 percent to state and local governments for debris removal, emergency protective measures, roads and bridges, water control facilities, commercial infrastructure, and private residences.



Require state and local governments to create comprehensive disaster preparedness plans

- Federal agencies provide technical assistance to states to help them prepare for disasters and administer grants for the purpose of creating or updating emergency plans.

Though the Stafford Act is still seen as an important foundation for coordinating national responses to disasters, a number of deficiencies have been identified since its passing. The main critiques, outlined by Maria Linares, have been “increasing funds directed to recovery rather than preparedness, reconstruction efforts determined by pre-disaster conditions, and difficulty in tracking spending at the state level.”³

Case Study: Rockaway Revitalization and Storm Resiliency

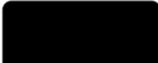
Click below for more on this case's:

< Introduction



The Rockaway boardwalk (Jacobs)

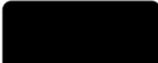
Sec. 308a of the Stafford Act mandates “Nondiscrimination in Disaster Assistance (42 U.S.C. 5151).” The subsection requires “regulations for equitable and impartial relief operations.... Such regulations shall include provisions for insuring that the distribution of supplies, the processing of applications, and other relief and assistance activities shall be



accomplished in an equitable and impartial manner, without discrimination on the grounds of race, color, religion, nationality, sex, age, disability, English proficiency, or economic status.”⁴

Post-Katrina disaster legislation addresses the increased need for equitable disaster relief and funding. Still, the federal response to Hurricane Sandy revealed an inequity in speed of funding in parts of New York; wealthier communities received government aid relatively quickly, while it was slower to reach low-income communities. According to sociologist Miriam Greenberg, the recovery response for neighborhoods like the Lower East Side, Chinatown, Red Hook, Coney Island, and Far Rockaway was “woefully inadequate.”⁵

According to the New York City Comptroller’s Office, \$14.7 billion in federal aid was set aside for post-Sandy restoration and resiliency measures in New York City.⁶ \$10.5 billion in grants were provided by FEMA for public infrastructure



recovery and resiliency and \$4.2 billion were awarded to the city by the Department of Housing and Urban Development (HUD) for housing recovery, business support, and resiliency, including \$473.2 million in funds for coastal resiliency projects.⁷ The parent contract for Jacobs’s Rockaway Revitalization and Storm Resiliency project awarded Jacobs via CH2M Hill \$564.5 million,⁸ which allocated funds for various A&E projects as part of the FEMA Public Assistance Program.⁹ Of all of the child contracts related to Hurricane Sandy, only about 8 percent (\$43.2 million) were for Hurricane Sandy recovery and relief services performed in Queens, which accounted for 60 percent of the homes either destroyed or determined to be unsound following the storm.¹⁰

Click below for more on this case’s:

- Managers >
- Stakeholders >
- Stewards >



The aftermath of Hurricanes Katrina and Rita shifted how disaster legislation connects with the A&E System. In part due to widespread reports of corruption in the relief efforts following Hurricane Katrina, much of the regulatory framework guiding federal spending was changed between 2005 and 2010. These changes principally came in the form of limits to FEMA’s authority, increased transparency and reporting requirements, mandates for private contracts (and subsequently larger contracts for fewer firms), increased regulation of project timelines, and more streamlined procurement processes.

The Federal Acquisition Regulation (FAR) became effective in 1984 and is the “primary regulation for use by all executive agencies in their acquisition of supplies and services with appropriated funds.”¹¹ Several key amendments were made to the FAR following 2005: 36.6 and 36.7 (Architectural



and Engineering Contracts); 18 (Emergency Acquisitions).¹²

Sections 36.6 and 36.7 prescribe policies and procedures for contracting A&E services. They also include contracting requirements for the dismantling, demolition, or removal of improvements, and discuss firm-fixed-price contracts as a key way of contracting A&E services. These sections also provide guidelines for encouraging agencies to select reliable and reputable contractors, establish evaluation boards for project procurement and oversight, and mandate that selected A&E firms are liable for the cost of remedying any potential design errors.¹³

The FAR implements the Stafford Act's statutory mandate by expressly allowing procurements characterized as other than full and open competition to fulfill the requirements of the act. Specifically, the FAR allows Contracting Officers to set aside



solicitations to allow awards only to “offerors residing or doing business primarily in the area affected by...[a] major disaster or emergency.” “No separate justification or determination and findings are required,” when executing such geographically based set-asides. The authority to exercise a preference applies to acquisitions conducted during the term of a major disaster or emergency declaration made by the president under the act.¹⁴

S. 3721: Emergency Management Reform Act of 2006¹⁵

Alongside amendments to the FAR, new legislation was also passed following Hurricane Katrina. The 2006 Post-Katrina Emergency Management Reform Act gives FEMA additional guidance on its mission and priorities and provides legislative authority for the agency to partner with state, local, tribal,



and territorial governments before, during, and after disasters.

Key provisions:

- Requires the development of pre-scripted mission assignments.
- Establishes the National Incident Management System (NIMS) and the National Response Framework as the guide for emergency response and domestic incident management.
- Lists revisions to the Stafford Act regarding early phases of recovery, including: disaster assistance, transportation assistance, and case management services.¹⁶
 - (Sec. 204) Directs the Administrator to develop a National Disaster Housing Strategy.
 - (Sec. 213) Directs FEMA to appoint a Disability Coordinator to ensure that the needs of individuals with disabilities are being addressed in emergency



preparedness and disaster relief.

- (Sec. 227) Authorizes the temporary use of existing, repaired rental units. Authorizes providing funds to state and local governments to contract with owners of private rental housing to provide temporary housing to eligible individuals and households for up to eighteen months at a specified rent.
- (Sec. 508) Requires any expenditure of federal funds for major disaster or emergency assistance activities which may be carried out by a contract or agreement with private organizations, firms, or individuals that is not awarded to an entity residing or doing business primarily in the area affected to be justified in writing. Requires an agency performing response, relief, and reconstruction activities, to the maximum extent feasible, to transition work performed under contracts in



effect on the date the president declares the emergency or major disaster to such an entity residing or doing business primarily in the affected area. Provides that nothing herein shall be construed to require any federal agency to breach or renegotiate any contract in effect before the occurrence of a major disaster or emergency.

Subtitle F—Prevention of Fraud, Abuse, and Waste¹⁷

Under this subtitle, the act requires private contracts, and a time limit for entering into them. “Not later than one year after the date of enactment of this Act, the Administrator shall enter into one or more contracts for each type of goods or services identified under subsection.”

Case Study: Temporary Housing Solutions in response to Hurricanes Katrina and Rita

Click below for more on this case's:

< Introduction



A sticker in the window of a temporary housing unit reads "NOT TO BE USED FOR HOUSING" (Nick Shapiro)

According to 2006 testimony in the Department of Homeland Security Appropriations Committee, because Fluor was already “under retainer to provide surge capacity in the event of hurricanes,” it was one of four companies—along with CH2M Hill, Bechtel, and Shaw—awarded no-bid contracts in response to Hurricane Katrina.



Michael P. Jackson, Deputy Secretary of Homeland Security, explained that FEMA was underprepared for the magnitude of Hurricane Katrina, and in response, “[FEMA] took four companies that they had done this background assessment and review of capabilities on, and they gave them these commitments.”¹⁸

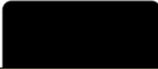
After the initial “surge,” Jackson clarified that the plan for FEMA was “to open this competition back up, finalize that facility for doing this type of work, and choose one or more firms for the longer haul here. But these firms honestly stepped up to the bar under very difficult circumstances, and in short order, to try to help us do this and it was an appropriate use of authority at that time.”¹⁹

Because of the urgency of the crisis, the government bypassed its process of competitive bidding in awarding initial response contracts. A year after Katrina, all four companies were again awarded no-bid contracts.



A U.S. House of Representatives report titled “Waste, Fraud, and Abuse in Hurricane Katrina Contracts” found that at one point, FEMA awarded 93 percent of the total dollar value of contracts without full bidding.²⁰ The four renewed contracts to the A&E firms were later determined by the Homeland Security Department’s Office of Inspector General to have wasted at least \$1 billion of taxpayer funds.²¹

The Post-Katrina Emergency Management Reform Act also reflects the need for oversight on post-disaster recovery efforts.²² Sec. 389 mandates: “increasing the Federal share for removal of debris and wreckage for States and local governments that have a debris management plan approved by the Administrator and have pre-qualified one or more debris and wreckage removal contractors before the date of declaration of the major disaster.”²³ Given the large amounts of fraud in debris removal



following both 9/11 and Hurricane Katrina, debris removal and clearance was an unsurprising area of focus.²⁴

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Engineer Federal Acquisition Regulation Supplement (UAI/EFARS) 36.601-3 (S-101) (U.S. Army Corps of Engineers) (Updated January 25, 2017)²⁵

A supplement was added to the FAR's section 36 in 2017 that directly addresses the U.S. Army Corps of Engineers (USACE) in the form of a USACE Acquisition Instruction (UAI). The UAI establishes uniform policies and procedures to ensure that business practices are consistent throughout USACE.



It provides internal guidance; delegations of authority; assignments of responsibilities; work-flow, contracting, and implementation procedures; and internal reporting requirements.

Key provisions:

- Requires that any contracted expense exceeding \$25,000 shall be made publicly available
- Mandates that a majority (at least 50 percent) of the contracted work is to be completed by the primary firm
- Requires a Subcontracting Plan for any A&E contract over \$650,000



H.R. 302: Disaster Recovery Reform Act (DRRA), 2018

The Disaster Recovery Reform Act (DRRA) is a major revision of the Stafford Act that was signed into law in 2018. The DRRA includes more than fifty provisions, placing emphasis on disaster and hazard mitigation and preparedness, namely through the establishment of a National Infrastructure Fund. Of particular note is the amendment to the Stafford Act’s Sec. 406: Repair, Restoration and Replacement of Damaged Facilities, which had previously specified that rebuilding was to be done in accordance with pre-disaster conditions—even if these had proven vulnerable.²⁶ The DRRA updates Sec. 406 by “authorizing FEMA to provide funding to repair, restore, reconstruct, and replace facilities according to the latest published editions of relevant consensus-based codes, specifications, and standards that incorporate the latest



hazard-resistant designs... in a manner that meets the definition of resilient.”²⁷

According to a FEMA update on April 10, 2020, “the following principles will guide the Building Resilient Infrastructure and Communities (BRIC) program: support communities through capability and capacity building; Encourage and enable innovation; Promote partnerships; Enable large projects; Maintain flexibility; and Provide consistency.”²⁸

Jillian Morrison, appointed in 2014 as the Navy’s Assistant General Counsel for Energy, Installations, and Environment,²⁹ wrote in 2008 on the Stafford Act and Post-Disaster Contracting: “Despite the importance of contract monitoring, however, the Office of Federal Procurement Policy (OFPP) has identified inadequate contract administration as one of the Government’s principal



weaknesses. According to the OFPP, contracting officials allocate more time to awarding contracts than to administering them. This practice leads to “contractor performance problems, cost overruns, and delays in receiving goods and services.”³⁰

Lobbying and Corporate Spending

Millions of dollars are spent annually on political lobbying by top A&E firms, most notably surrounding legislation related to federally awarded private contracts, disaster relief funding, and Department of Defense spending. A&E firms also spend millions of dollars yearly on public interest groups, political action committees (PACs), and political campaigns. In 2017, one such group, the National Association of Manufacturers (NAM) lobbied to “amend section 111 of the Clean Air Act to exclude energy efficiency projects, pollution control projects, and



reliability projects from the definition of a modification.”³¹ In March of 2019, NAM’s Vice President of Energy & Resources wrote an op-ed against the Green New Deal.³²

When examining the selected A&E firms, relationships between corporate spending and top federal contracts come into focus. Corporate profits, years lobbied, and annual donation expenses vary across each company. It is important to note that the reporting requirements of lobbying and donations differ dramatically between publicly-traded and privately-owned firms; as a private architecture firm, ZGF has no published history of lobbying.

For this section, to track corporate donations and lobbying expenditures between 2000 and 2020, shown first in the case of AECOM, OpenSecrets is the main source. An online database funded by the Center for Responsive Politics, OpenSecrets is “nonpartisan,



independent and nonprofit.” The organization declares its primary goal as providing public information related to money’s role in politics and policy.³³ Here, lobbying efforts by these five firms illustrate the role that money plays in the A&E System.

AECOM

Between 2000 and 2020, AECOM lobbied on various issues related to different federal agencies, including Amtrak, the Department of Energy, the Department of Transportation, the Federal Railroad Administration, and the Federal Transit Administration.

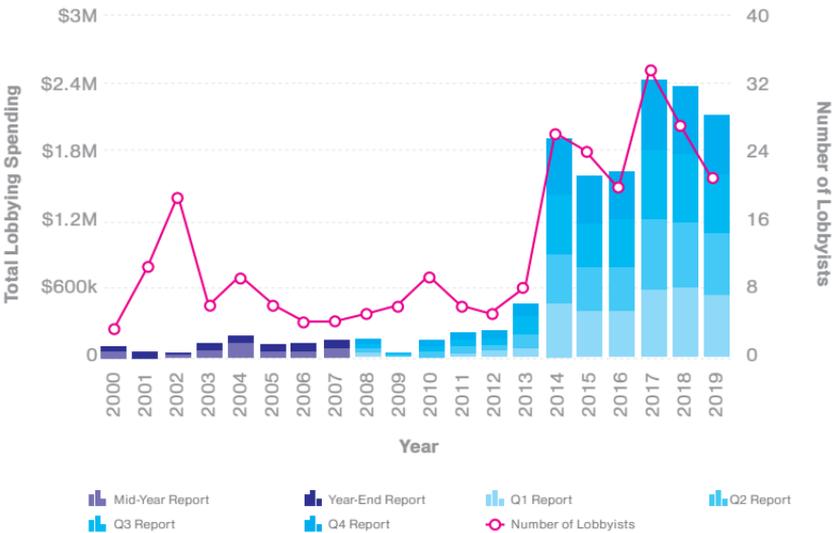
From 2014–2019, AECOM dramatically increased its corporate lobbying. Prior to 2014, the company’s top lobbying year was 2013 with \$480,000 in expenses, which quadrupled to \$1,940,000 the following year, with an

eventual average of \$2,000,000 over the next five years.³⁴ AECOM's top lobbying year was 2017, totaling \$2,450,000 in expenditures.³⁵ The spike in spending coincides with a new docket of topics. Top issues for 2014–2019 included “Federal Budget & Appropriations,” “Energy & Nuclear Power,” and “Hazardous and Solid Waste.” In 2017, Federal Budget & Appropriations lobbying related to the Energy and Water Development and Related Agencies Appropriations Act, environmental management funding, and the National Defense Authorization Act.³⁶ That same year, AECOM also lobbied to ensure future energy and nuclear power contracting through the Department of Energy, as indicated by the company's lobbying for H.R. 3183 Energy and Water Appropriations, and provisions related to environmental cleanup and to the Waste Isolation Pilot Plant (WIPP) program.³⁷

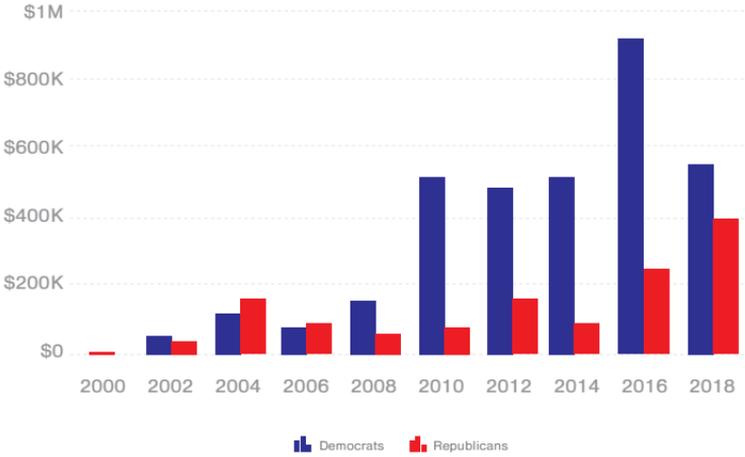
Transportation lobbying in 2017 specifically dealt with the implementation of the FAST Act, infrastructure, and the Department of Transportation’s H.R. 3353/S.1655-Fiscal Year 2018 Appropriations.³⁸

The following visualizations show publicly available data regarding AECOM’s lobbying from 2000–2019.

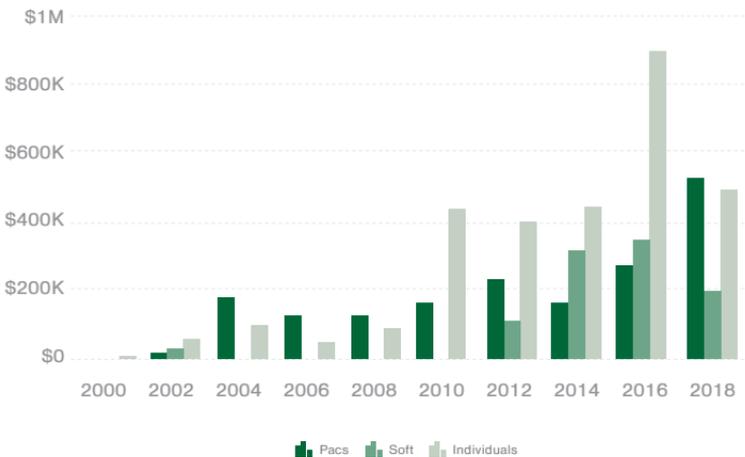
Annual Lobbying by AECOM (2000–2019):³⁹



AECOM Donations to Political Parties (2000–2018)⁴⁰



Total AECOM Donations by Source of Funds (2000–2018)⁴¹



AECOM bills lobbied (2019)⁴²

Bill Number	Congress	Bill Title	No. of Reports & Specific Issues
H.R.2500	116	White Sands National Park Establishment Act	5
H.R.2960	116	Energy and Water Development and Related Agencies Appropriations Act, 2020	4
H.R.2968	116	Department of Defense Appropriations Act, 2020	3
H.R.3163	116	Department of Transportation Appropriations Act, 2020	3
S.1706	116	Energy Savings Through Public-Private Partnerships Act of 2019	3
S.1790	116	White Sands National Park Establishment Act	3
S.1857	116	Federal Energy and Water Management Performance Act of 2019	3
S.2470	116	Energy and Water Development and Related Agencies Appropriations Act, 2020	3
S.2474	116	Department of Defense Appropriations Act, 2020	2
S.2520	116	Department of Transportation Appropriations Act, 2020	2
S.2302	116	America's Transportation Infrastructure Act of 2019	2

Alongside other issue-oriented lobbying, AECOM has lobbied for disaster and emergency planning over the course of the last twenty years. Using the OpenSecrets category

of “Disaster & Emergency Planning,” which incorporates any post-Katrina legislation such as the DRRA, several lobbying efforts related to the A&E System emerge. Between 2000 and 2011, AECOM only lobbied once under this category, in 2002. But in 2012, AECOM expressed renewed interest in lobbying for disaster relief legislation. Some relevant lobbying efforts related to disaster and emergency planning since then have been:

- 2012: “Federal Appropriations for Disaster Relief”—\$60,000 (one report)⁴³
- 2013: “Federal appropriations for hurricane disaster relief; Sandy supplemental appropriations relief bill; H.R. 4”—\$240,000 (four reports)⁴⁴
- 2014: “Federal appropriations for hurricane disaster relief; Sandy supplemental appropriations relief bill; H.R. 4”—\$60,000 (one report)⁴⁵

- 2017: Disaster Recovery Reform Act (DRRA): In 2017, AECOM began lobbying again for “Reauthorization of the National Flood Insurance Program” under the DRRA. Between 2017 and 2019, AECOM spent over \$6.59 million lobbying on this issue.
 - 2017: \$1.85 million⁴⁶
 - 2018: \$2.39 million⁴⁷
 - 2019: \$2.35 million (together with “US Virgin Island Disaster Assistance, Flood Insurance”)⁴⁸
 - 2020: “Reauthorization of the National Flood Insurance Program”—\$320,000⁴⁹

Case Study: U.S. Army Pacific Mission Command Facility

Click below for more on this case's:

< Introduction



AECOM's proposed design for the Mission Command Facility (AECOM)

AECOM hired the firm Baker Donelson Bearman Caldwell & Berkowitz / The Daschle Group to lobby for its interests in relation to the Department of Defense Appropriations Act, 2020 (H.R.2968 and S.2474). Since 2018, AECOM has spent \$270,000 on this lobbying.⁵⁰ AECOM lobbies specifically for eleven issues, with defense listed as the sixth highest.⁵¹

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Managers >

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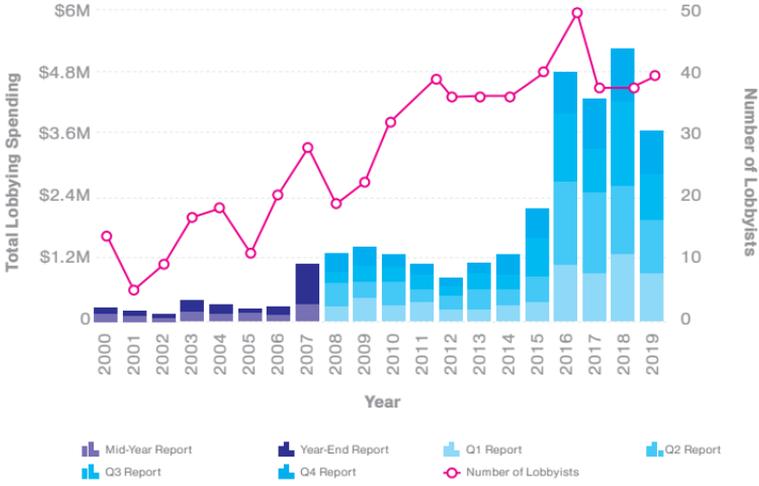
FLUOR

In 2000, Fluor's lobbying expenses were \$540,000. But over the last two decades, the company's yearly lobbying increased tenfold, with a significant uptick in these efforts beginning in 2016. Between 2000 and 2020, Fluor's top lobbying year was 2018, spending a total of \$5,561,306.⁵² A large increase in Fluor's lobbying occurred between 2015 and 2019, jumping from over \$2,000,000 in 2015 to over \$5,000,000 in 2016. Over this four year period, the company primarily lobbied

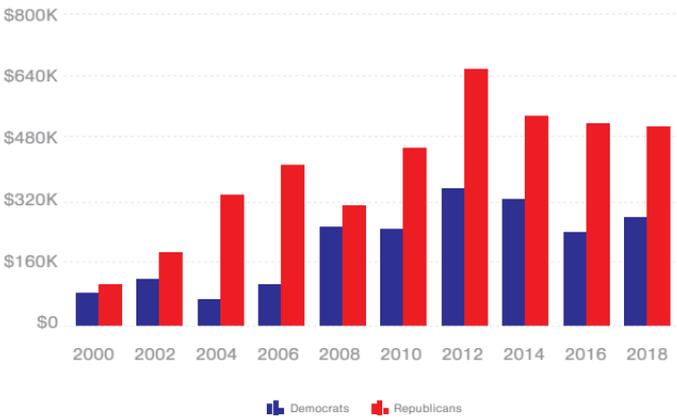
the Department of Transportation and the Department of Energy. Top issue categories included “Energy & Nuclear Power,” “Taxes,” and “Transportation.”

Over this same period of time,⁵³ Fluor began to treat regulatory compliance as a marketable and profitable service.⁵⁴ In its 2000 annual shareholder report, Fluor states its strategy for navigating new federal, state, and local environmental regulations. Although the report frames compliance in terms of the potential costs that will accrue due to regulations, by 2020 the additional service of navigating those same regulations with a competitive advantage had become a source of additional revenue for the company.

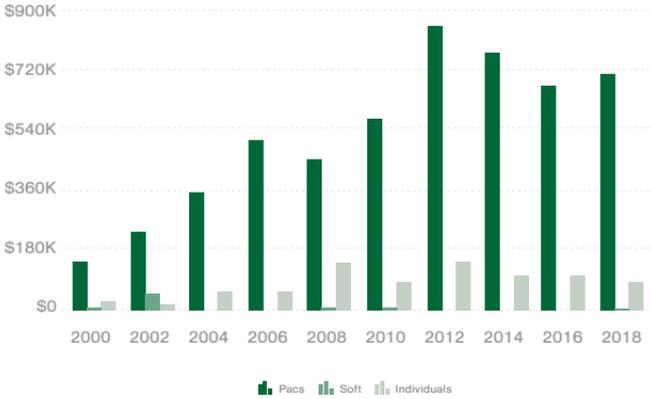
Fluor Lobbying (2000–2019)⁵⁵



Total Fluor Donations to Political Parties (1990–2020)⁵⁶



Total Fluor Donations by Source of Funds (1990–2020)⁵⁷



Fluor has also consistently lobbied on issues related to “Disaster and Emergency Planning,” which has direct implications for the A&E System. Notable instances of these efforts over the last two decades include:

- 2007: “Congressional oversight of Hurricane Katrina relief efforts, specifically regarding performance on contracts for trailer and mobile home maintenance”—\$140,000⁵⁸
- 2008: “Congressional oversight of Hurricane Katrina relief efforts, specifically regarding

- performance on contracts for trailer and mobile home maintenance”—\$15,000⁵⁹
- 2018: “Hurricane Maria relief efforts”—\$290,000⁶⁰
 - 2018: “Issues related to recovery efforts for Puerto Rico”—\$1,362,000⁶¹
 - 2019: “Issues related to energy and transportation”—\$80,000⁶²
 - 2019: “Issues related to clean up/recovery priorities in Disaster Supplemental Appropriations, S-572.”—\$954,393⁶³
 - 2020: “Issues related to energy and transportation”—\$40,000⁶⁴
 - 2020: “Issues related to support for USG for COVID-19 response, Issues related to outstanding tax issue”—\$505,470⁶⁵ (as of 04/26/2020)

HDR

Over the last two decades, HDR has concentrated its lobbying on agencies that directly benefit its projects. For instance, HDR lobbied for the Military Construction, Veterans Affairs, and the Related Agencies Appropriations Act of 2019. Of note is that HDR is the only company here under review that has no disaster relief lobbying on record between 2000 and 2020.

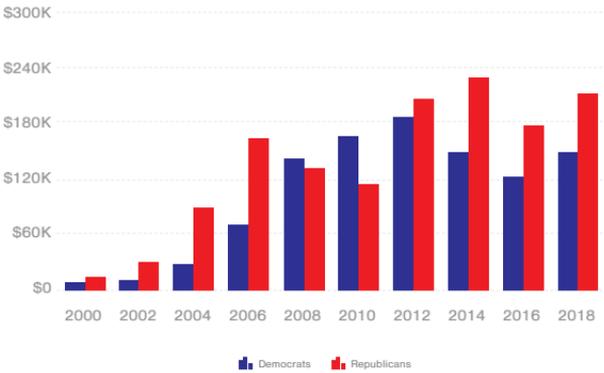
In 2019, HDR spent \$1,030,000 on lobbying, its highest amount in the past decade.⁶⁶ HDR's lobbying in 2019 involved the following federal agencies: the U.S. Army Corps of Engineers, the Bureau of Reclamation, the Department of Defense, and the Environmental Protection Agency. Top issue categories included "Natural Resources," "Defense," and "Transportation." HDR's 2019 lobbying on natural resources

included: “Assist in communications with the Bureau of Reclamation with regard to education opportunities on modern pipe construction methods, standards, and projects.”⁶⁷ HDR’s defense lobbying in 2019 was on issues such as: “items relating to military construction,” “monitor defense and military construction appropriations and funding,” and “Engineering Issues related to the National Defense Authorization Act and Military Construction/VA Appropriations.”⁶⁸ HDR’s 2019 transportation lobbying efforts included: “Issues Related to Infrastructure Development,” “Issues Related to Surface Transportation Reauthorization,” and “Track Implementation of Water Infrastructure Improvements for the Nation Act (WIIN Act) PL 114-322.”⁶⁹

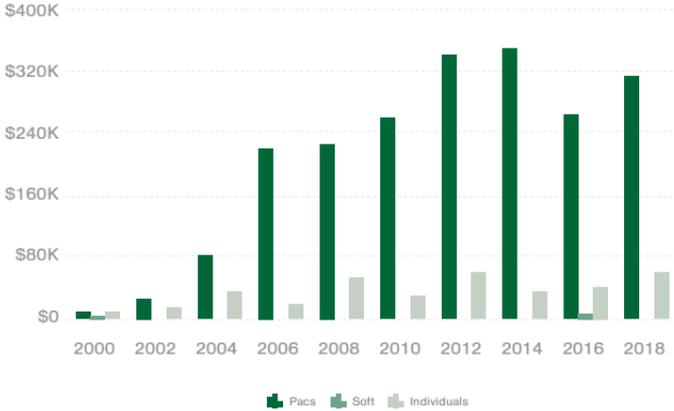
Annual Lobbying by HDR (2001–2019)⁷⁰



Total HDR Donations to Political Parties (1990–2020)⁷¹



Total HDR Donations by Source of Funds (1990–2020)⁷²



HDR is also registered as a qualified Corporate Political Action Committee (PAC). Between January and November of 2019, the PAC disbursed \$365,470.91. In 2019, HDR’s largest donation was \$25,000 to Keep Washington Rolling, a statewide coalition of labor and business leaders advocating for automotive infrastructure. According to the company’s fact sheet, “Investment in our highways, bridges and transit systems is crucial for our state’s economy. We must act now to

maintain and repair our current roads and highways, provide funding for critical safety, freight and mobility projects and provide local governments with options to protect transit service and improve local roads.”⁷³

Case Study: Walter Reed National Military Medical Center

Click below for more on this case’s:

< Introduction



HDR’s proposed renovations at the Walter Reed National Military Medical Center (HDR)

In connection to HDR’s 2013–2021 contract with the Walter Reed National Military Medical Center, the company spent \$1.34

million in lobbying efforts related to defense. These efforts included the National Defense Authorization Act, issues related to engineering in Department of Defense and U.S. Army Corps of Engineers projects, and military construction. In 2018, HDR spent \$485,180 in grants, most of which directly linked to the interests lobbied for in 2018.⁷⁴ The same year, the company logged \$1.01 million in lobbying expenses⁷⁵ and an additional \$200,175 on political campaigns.⁷⁶

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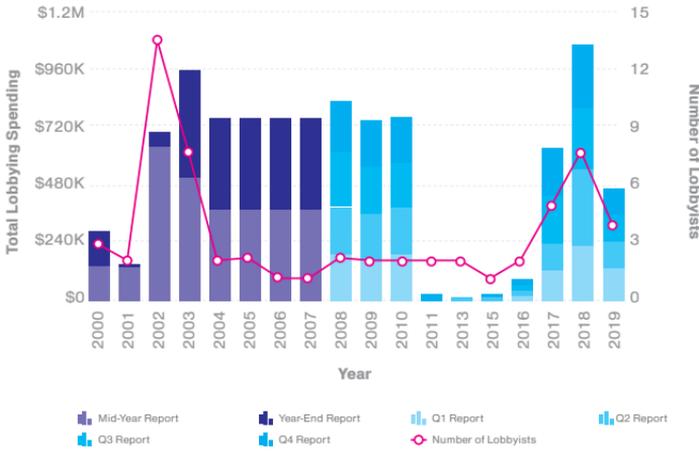
Stewards [>](#)

JACOBS

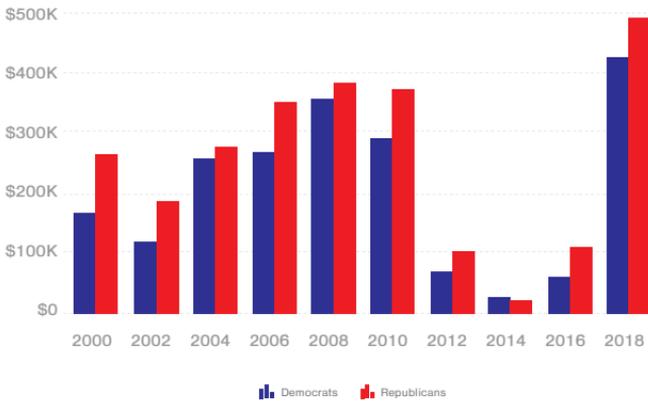
Between 2000 and 2020, Jacobs's lobbying expenses have trended downward, unlike AECOM, Fluor, and HDR, where the opposite has been true. While Jacobs's top lobbying year was 2018 (spending \$1,120,000), most of the firm's top lobbying occurred from 2002–2010 (averaging \$800,000) with little to no lobbying from 2011 to 2016.⁷⁷ From 2002 to 2010, Jacobs's most frequently lobbied issues included federal appropriations, transportation and highways, defense, and nuclear power. Jacobs's most frequently lobbied federal agencies in the last two decades were the Department of the Army, the Department of Energy, the Department of Homeland Security, the Department of Transportation, the Federal Highway Administration, the National Aeronautics

& Space Administration, and the National Highway Traffic Safety Administration.

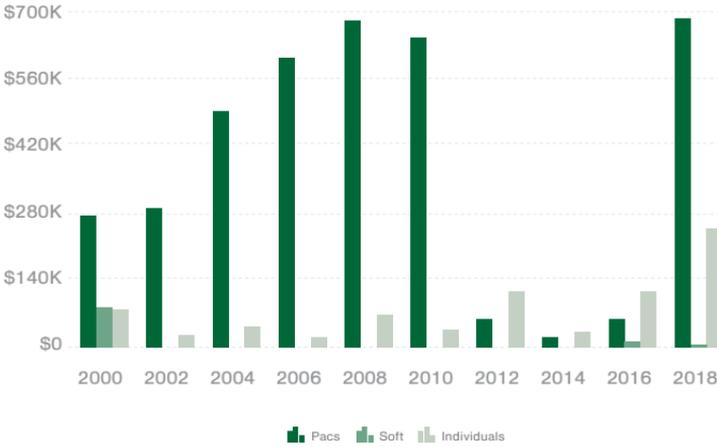
Annual Lobbying by Jacobs (1999–2020)⁷⁸



Total Jacobs Donations to Political Parties (1990–2020)⁷⁹



Total Jacobs Donations by Source of Funds (1990–2020)⁸⁰



Jacobs also lobbied on “Disaster and Emergency Planning” over the last two decades:

- 2005: “Contracting issues related to disaster recovery”—\$800,000⁸¹
- 2007: “Issues affecting disaster assistance, preparedness and planning”—\$400,000⁸²
- 2020: “Issues related to FY20 appropriations in response to COVID-19 pandemic; issues related to implementation of CARES Act (H.R. 748)” —\$150,000⁸³

ZGF

ZGF is the only firm studied here that operates privately—that is, out of the view of shareholders or employee owners—and thus does not have the same disclosure requirements. Nonetheless, there are some public records on ZGF’s corporate donation history. The company’s top charitable contributions are generally directed toward nonprofits in the Pacific Northwest, the firm’s base of operations. Data collected on ZGF’s corporate giving primarily comes from the *Portland Business Journal*.

Over the past decade, ZGF has generally increased its corporate in-cash and in-kind donations:

- 2013: \$279,000
- 2014: \$264,500
- 2015: \$377,000

- 2016: \$496,000
- 2017: \$548,000
- 2018: \$496,000⁸⁴

Top Recipients of ZGF Donations (2013–2018) include⁸⁵

1. Oregon Health & Science University Foundation
2. United Way of the Columbia-Willamette
3. Regional Arts & Culture Council
4. EarthShare Oregon
5. Architecture Foundation of Oregon

As one of Portland’s largest architecture firms, ZGF donated less than most corporate enterprises of similar size in the region. According to the *Portland Business Journal*, ZGF ranked #32 out of 41 in corporate philanthropy.⁸⁶ ZGF consistently donates the highest amount to healthcare-related foundations. Previously mentioned corporate

reports list the design of healthcare facilities as one of ZGF's most lucrative services.

Case Study: St. Elizabeths West Campus

Click below for more on this case's:

< Introduction



ZGF's proposed design for the St. Elizabeths West Campus (ZGF)

The American Recovery and Reinvestment Act directly allocated additional funding to the St. Elizabeths project: “provides \$200 million to continue development of the Department of Homeland Security (DHS) Consolidated Headquarters at St. Elizabeths. Implementing Guidance from the Office of Management and

Budget further requires the submission of a Program Specific plan detailing how the funds will be applied and managed.”⁸⁷

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Over the last two decades, there has been a notable increase in public spending directly related to the A&E System. This can be linked to both the escalation in climate-induced disasters as well as to changes in regulatory frameworks. Alongside this ramp-up in federal financing is the intensification of private interest. These interests are linked to consolidated corporate management, focused lobbying efforts, and a pervasive trend toward



privatization. The A&E System is engaged in a cyclical pattern of both participating in and benefiting from shifting regulation in government contracting, blurring the line between public works and private interest.



Notes

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- 12 *Federal Acquisition Regulation*. [56 FR 29128, June 25, 1991, as amended at 70 FR 57454, Sept. 30, 2005].
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- 18 Michael P Jackson was previously senior VP at AECOM responsible for AECOM government relations globally. United States Congress, *Department of Homeland Security Appropriations for 2006*, pt. 5 (Washington, DC: Government Printing Office, 2006), 357, 390.



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- 36 “Client Profile: AECOM Global.”
- 37 “Client Profile: AECOM Global.”
- 38 “Client Profile: AECOM Global.”
- 39 “Client Profile: AECOM Global.”
- 40 “Client Profile: AECOM Global.”
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MANAGERS



A ribbon-cutting event at one of the St. Elizabeths West Campus buildings (Daniel J. Sernovitz, *Washington Business Journal*)

Managers

Who, and what, controls the A&E System?

A&E firms are run by professionals whose connections and business experience contribute to each company's ability to procure and execute contracts. Many of these firms have vast networks of employees, managers, and sub-managers. Their organizations differ, but generally consist of a CEO or Director who responds to the shareholders (in the case of a publicly-traded company) and board of directors. These firms typically express their procurement goals and strategies via annual reports and other reporting to stakeholders, but many decisions about the procurement process are made out of the public eye.

More broadly, the A&E System is managed by the interconnections between companies' internal departments and acquired and

subcontracted firms. Large A&E firms often highlight their ability to manage multiphase projects involving complicated zoning, permitting, construction, design, and engineering requirements—abilities that are facilitated by subcontractors and acquired companies. While this management includes contract procurement, it extends to the life cycle of projects as well.

The A&E System utilizes the language of federal procurement, making certain terms and definitions particularly relevant—for example, the differences between a “Procurement Contract,” “Grant,” and “Cooperative Agreement.”

Procurement Contract	Grant	Cooperative Agreement
<p>An executive agency shall use a procurement contract as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when—(1) the principal purpose of the instrument is to acquire (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; or (2) the agency decides in a specific instance that the use of a procurement contract is appropriate.</p>	<p>An executive agency shall use a grant agreement as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when—(1) the principal purpose of the relationship is to transfer a thing of value to the State or local government or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; and (2) substantial involvement is not expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement.</p>	<p>An executive agency shall use a cooperative agreement as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when—(1) the principal purpose of the relationship is to transfer a thing of value to the State, local government, or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; and (2) substantial involvement is expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement.</p>
31 U.S.C. 6303	31 U.S.C. 6304	31 U.S.C. 6305

Alongside these definitions are various contract types that are managed by A&E companies. These categories map onto procurement trends that have been evolving over the last

twenty years. Other relevant contract definitions are available in the glossary appended to this document.

- Indefinite Delivery/Indefinite Quantity (IDIQ) contracts are unique in that they specify a minimum and maximum total quantity, and set a number of base years for the contract, with options for renewal. Smaller, local companies are more-or-less ineligible for this type of contract, because they do not possess the resources to bid for them. Their only chance at participating is by offering their services as a subcontractor.¹
- Firm-Fixed-Price contracts provide a price that is not subject to any adjustment on the basis of the contractor's experience in performing the contract. This contract type places upon the contractor maximum risk and full responsibility for all costs and resulting profit or loss. It provides maximum

incentive for the contractor to control costs and perform effectively and imposes a minimum administrative burden upon the contracting parties.²

- Firm-Fixed-Price, Level-of-Effort is a contract type suitable for investigation or study in a specific research and development area. The product of the contract is usually a report showing the results achieved through application of the required level of effort. However, payment is based on the effort expended rather than on the results achieved.³
- Time-and-Materials is a common contract type for large A&E firms. The hiring agent agrees to pay the contractor based upon the time spent by the contractor's employees and subcontractors' employees to perform the work, and for materials used in the construction (plus the contractor's markup), no matter how much work is required to complete construction. Time-and-Materials

is generally used in projects in which it is not possible to accurately estimate the size of the project, or when it is expected that the project requirements will most likely change.⁴

- Cost-Plus-Fixed-Fee is a cost-reimbursement contract that provides for payment to the contractor of a negotiated fee that is fixed at the inception of the contract. The fixed fee does not vary with actual cost, but may be adjusted as a result of changes in the work to be performed under the contract. This contract type permits contracting for efforts that might otherwise present too great a risk to contractors, but it provides the contractor only a minimum incentive to control costs.⁵
- Other relevant contract types include: Cost Contract, Cost-Plus-Award-Fee Contract, Cost-Plus-Fixed-Fee Contract, and Labor-Hour Contract.

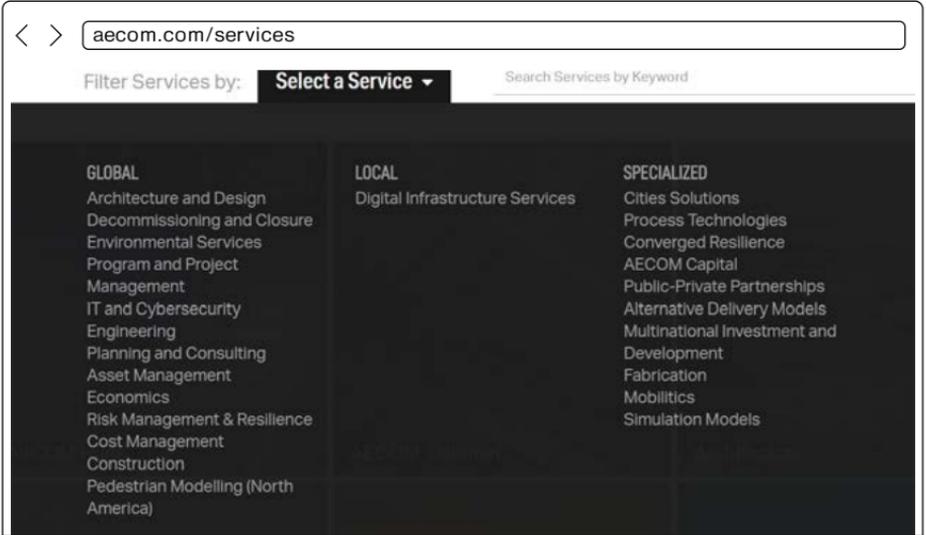
Federal procurement strategy is often publicly outlined by A&E firms themselves, typically as a way to assure investors of the firms' ability to obtain large contracts. The ways in which these firms go about explaining their procurement processes can vary. Most firms advertise their ability to handle complex large-scale projects in light of new governmental policies or plans. This is typically done through the discussion of project management techniques and organization, emphasizing the ability to streamline processes. Some firms outline strengths and challenges to their shareholders to better identify areas in which they will be competitive for contracts. These processes involve the work of extended networks of professionals within the companies, but are frequently spearheaded by the firm's CEO, director, or president, alongside the board of directors.

Due to federal procurement reporting requirements, much of the information contained in this chapter is widely available. However, these same regulatory systems also enable internal evaluations to remain largely internal. Decisions made privately within A&E firms influence procurement strategies and methods. Personal connections, corporate relationships, and lobbying efforts all play a role in how these firms obtain and manage projects. The purchasing and consolidation of other companies affects not only procurement, but also contract management. The five firms studied here utilize managers in many ways, as can be seen when examining their services, organization, project management, and strategy.

AECOM

Services

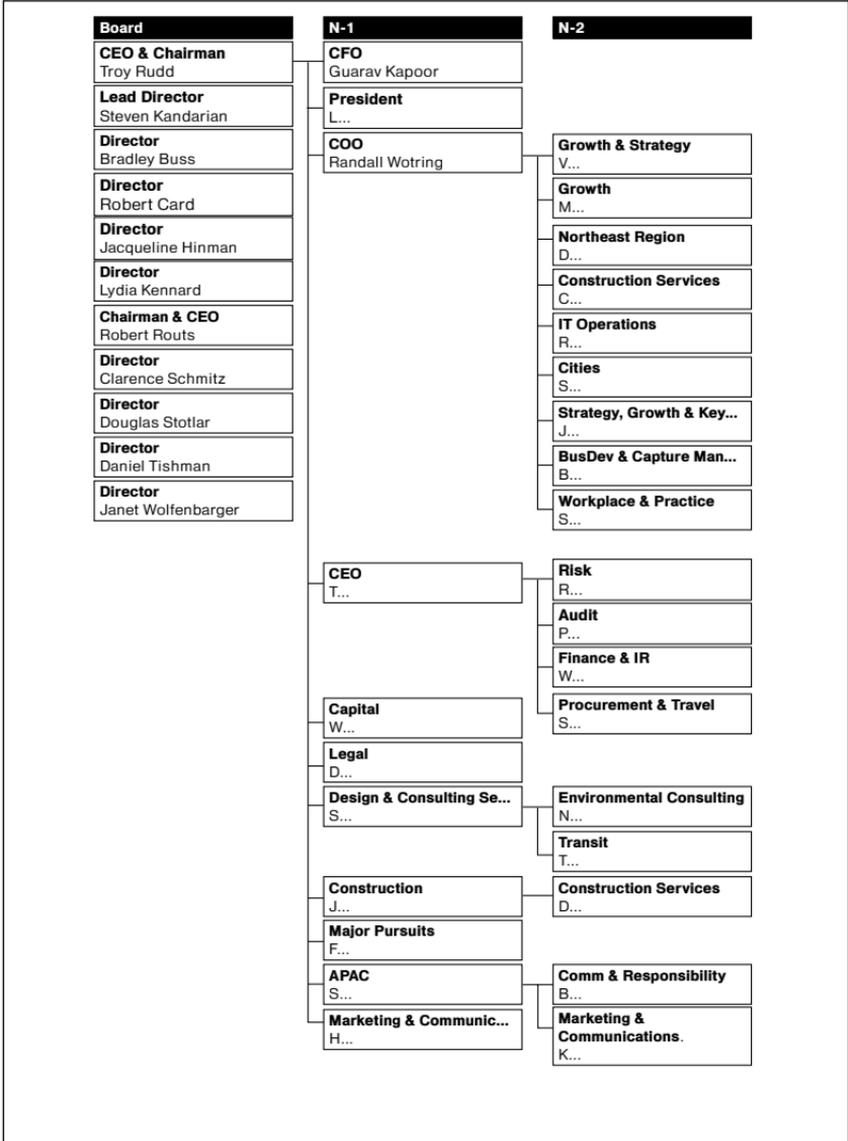
Many A&E firms categorize the work that they do into the language of “services.” It is not uncommon for these categories to change over time, which often provides insight regarding the sectors into which the firm is hoping to expand. In 2017, AECOM formed a division within its Construction Services unit that focuses on federal contracting. The division serves the military construction program, the General Services Administration, and the State Department, among others.⁶



AECOM's list of services (AECOM)⁷

Organization

AECOM is run by an extensive network of directors and senior leadership, as well as by managers within each service division.



At the time of publication, Michael S. Burke had recently resigned as CEO of AECOM. Burke first joined the firm in 2005, then served as the chief financial officer, and became CEO in 2014. He played an instrumental role in the evolution of AECOM from a privately-owned company to a publicly-traded firm with international clients and projects. Burke directed the company's IPO on the New York Stock Exchange, which is considered one of the "the largest engineering industry IPOs of all time."⁹

Burke is a member of the Business Roundtable, a nonprofit association comprised of CEOs of major US companies. Members include Jeff Bezos of Amazon and Mary Barra of General Motors, both of whom have made company decisions that Robert Reich, former US Secretary of Labor, claims are in contradiction to general Corporate

Social Responsibility (CSR) principles. Reich notes that in 2019, the Business Roundtable issued a message asserting that the “success of the American economy ‘depends on businesses investing in the economic security of their employees and the communities in which they operate.’”¹⁰ The Roundtable also extensively lobbied for the Trump Administration’s 2017 Tax Cuts and Jobs Act, from which members benefitted.

That same year, Burke noted that the Trump administration’s infrastructure proposal relied “heavily on private sector cash through public–private partnerships (PPPs).” Burke elaborated that:

This is something that we have long championed at AECOM and something that has worked very well in other economies around the world. We’ve seen public-private

*investment in Australia, Canada, the UK and across Europe, and we in the US have not taken as much advantage of it.*¹¹

In April 2020, Burke was listed as co-chair of the Infrastructure and Urban Development Industry community of the World Economic Forum, which has numerous partnerships including with Fluor and Jacobs. AECOM is not listed. The Infrastructure and Urban Development community is responsible for framing global industry standards, for which public-private sector cooperation is central.¹²

In August 2020, Troy Rudd, the former CFO, was appointed CEO of AECOM. He has held many roles at the company, including managing AECOM's Americas Design and Consulting (DCS) business, and drove the effort to raise funds for the AECOM acquisition of URS.¹³

Project Management

AECOM refers to itself as “an industry leader in program management services for large capital programs.” Its services include project planning, coordination, scheduling, and overall cost control.

Large programs require the management, coordination and integration of multiple, concurrent assignments. From concept through completion, we provide necessary technical and administrative services to help our clients meet their program objectives. We act as an extension of our clients’ staff, protecting their interests as our own.¹⁴

AECOM notes these areas as being representative of its program management and construction management services:

Program Planning and Management
Master Scheduling/Schedule Analysis
Master Budget Development
Design Management
Cost Management
Delivery and Contracting Strategies
Cost Estimating

Change Order Management
Value Engineering
Claims Avoidance
Dispute Resolution
Commissioning
Facility Condition/Life Cycle Assessments

15

Case Study: U.S. Army Pacific Mission Command Facility

Click below for more on this case's:

[**< Introduction**](#)

[**< Regulators**](#)



AECOM's proposed design for the Mission Command Facility (AECOM)

This project utilized AECOM managers and employees from a multitude of departments

within the organization, including: architecture and design engineering, environmental services, IT and cybersecurity, and planning and consulting.

AECOM's design process began with representatives of the company spending two weeks touring the facility and conducting interviews with people who work there. This process established several concepts for consideration, which were then presented at a workshop with stakeholders who could comment on the designs.

Michael Brennan, a design principal and senior vice president at AECOM, wrote that the “key to success was the team’s ability to navigate thousands of hours of customer meetings, define the needs of end users, and explain requirements to manage scope.”¹⁶

He elaborated on what this involved, stating that the “project management team fostered collaboration among more than a hundred designers to make sure every submission was completed

within the scheduled requirements.” As construction proceeds, the team “continues to refine documentation as needed, implement new technological advances, and further consolidate construction tasks in order to streamline funding.”¹⁷

One element that has aided in the construction and management of this project is the fact that AECOM team members had previously worked with the U.S. Army Corps of Engineers to develop the Unified Facilities Criteria 4-140-03 entitled “Command and Control Facilities - Standard Design,” which defined criteria such as workstation sizes, allowable square-foot allocations, and redundancy for critical mechanical and electrical systems. This document and expertise enabled “the design team to help explain complex technical concepts and hypothetical scenarios to gain consensus from site stakeholders and senior Army leadership throughout.”¹⁸

Click below for more on this case's:

Stakeholders >

Stewards >

Strategy

In 2014, AECOM purchased its major competitor, URS Corporation, for \$4 billion.¹⁹ This acquisition more than doubled AECOM's revenue and workforce, placing AECOM as the #1 globally-ranked engineering design firm by revenue, according to *Engineering News-Record*.²⁰ Donald Trump's 2016 election boosted AECOM's buying power. The company's share price shot from \$28 to around \$38 the day after the election result was announced, and maintained that level through the start of 2020.²¹ In 2017, AECOM launched a new \$3.5 billion acquisition plan, anticipating a demand for road, rail, and energy projects as a result of Trump's repeated, unfulfilled proposals to increase investment in US infrastructure projects.

In 2017 AECOM planned to hire over 3,000 workers to support infrastructure operations in North America. That same year, AECOM acquired Shimmick, a heavy civil construction company based in Oakland which primarily operates in California and elsewhere on the West Coast. The acquisition complemented AECOM's North American offering and positioned the company to take on more infrastructure projects.²²

In October 2019, AECOM sold its Management Services business, which provided consulting and project management to governmental clients, to affiliates of American Securities LLC and Lindsay Goldberg for a purchase price of \$2.405 billion. The sale of the Management Services business, completed on January 31, 2020, marked the end of a process that began with the company's June 17, 2019 separation announcement, in which AECOM announced that the "Board

of Directors has unanimously approved a plan to pursue a spin-off of the Company's Management Services segment into a leading, stand-alone government services company."²³

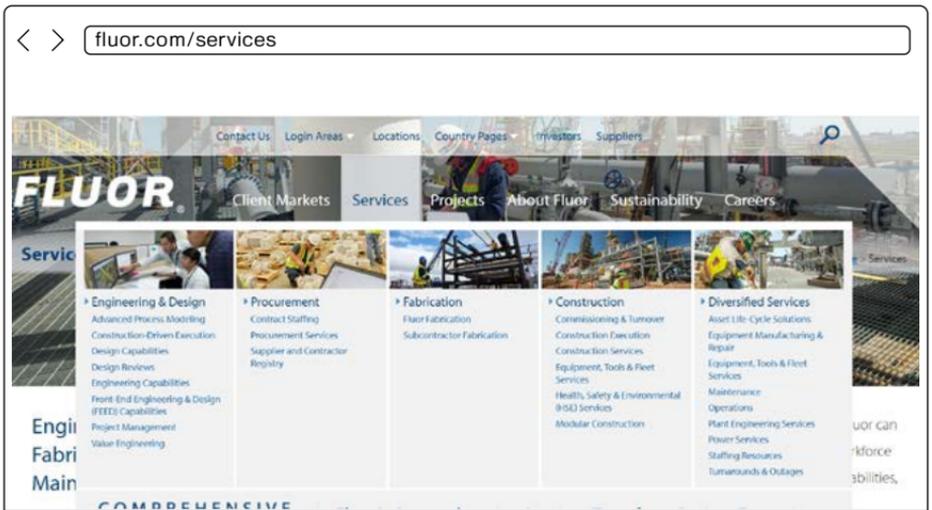
Company Acquired	Acquisition Date	Amount	Description
Shimmick Construction Company, Inc.	Jul 2017	\$175M	Shimmick is a civil construction company that designs and builds dams, bridges, water treatment facilities, foundations, transit and railway projects.
FT Services	Oct 2016	undisclosed	FT Services delivers maintenance, turnarounds and sustaining projects for the energy industry.
Hunt Construction Group, Inc.	Jul 2014	undisclosed	Hunt provides construction management, building design, preconstruction consulting, program management and consulting services.
URS Corporation	Jul 2014	\$6B	URS provides engineering, construction and technical services for public agencies and private sector companies.

AECOM's recent acquisitions (Owler)²⁴

FLUOR

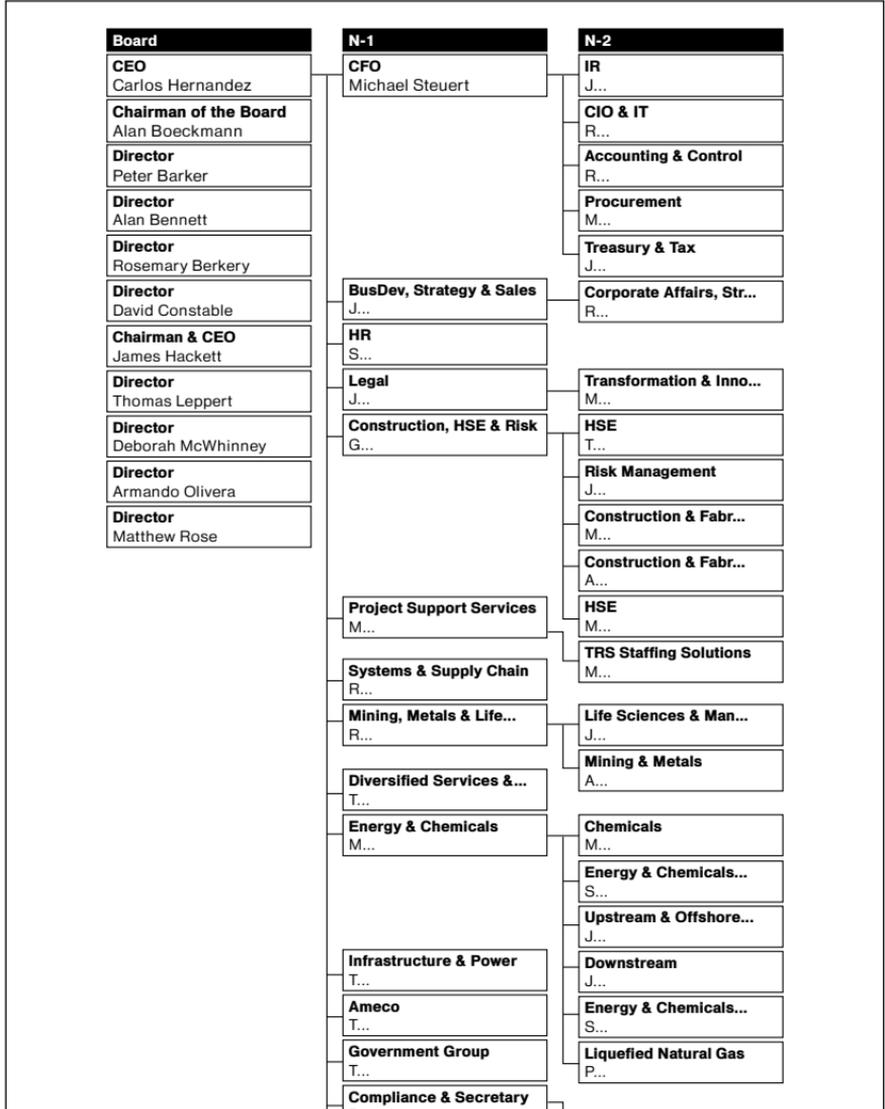
Services

Fluor also arranges its work according to the services offered to clients, which the company categorizes into five main types: Engineering and Design, Procurement, Fabrication, Construction, and Diversified Services. Each of these have sub-categories.



Fluor's list of services (Fluor)²⁵

Organization



Carlos Hernandez has been the CEO of Fluor since 2019. Before being named chief executive officer, Hernandez served in a number of other roles, going back to 2007. Prior to Fluor, he worked for the steel producer ArcelorMittal Americas and as general counsel and secretary of the International Steel Group (ISG).²⁷

The previous CEO of Fluor was David Seaton, who resigned in January 2019. Of note are his positions outside of Fluor—Seaton acted as vice chairman of the board of the National Association of Manufacturers (of which Bob Fluor was chairman in the 1970s), and served on the boards of The Mosaic Co. (a *Fortune* 500 mining company), The American Petroleum Institute, and the US-Saudi Arabian Business Council (USSABC).²⁸

In the annual report released prior to his resignation in 2019, Seaton described how

the company's approach to procurement has evolved:

In the last five years we have seen a cultural shift in the way clients want to structure large engineering, procurement, and construction (EPC) projects, with an increasing preference for fixed-price or hybrid contracts. Successful execution of these higher-margin opportunities requires new, innovative approaches to project management that only companies like Fluor can accomplish.²⁹

More recently, Hernandez has asserted that Fluor will no longer pursue government “lump-sum” projects, and will be hesitant to bid on projects in which they do not have considerable advantage.³⁰ In 2011, Fluor became the majority investor in NuScale Power, an upstart building small, modular

reactors, hoping to profit from future climate regulation that favors nuclear power.³¹ By 2017, Fluor had invested over \$475 million in the company.³²

Fluor can be said to capitalize on emergency status to procure contracts. In the aftermath of Hurricane Katrina, the firm was shown to have overcharged for services and to have failed to provide contracted services.³³

Project Management

In describing its approach to project management, Fluor underscores its ability to handle complex, global, multiphase projects from start to finish. Fluor elaborates that “as the project manager, we integrate EPC functions to meet client expectations.”³⁴

Fluor’s ability to handle many necessary project services in-house, which often eliminates the need for multiple consultants,

is “one of the reasons clients choose Fluor.” According to the company’s website, this capability is “changing the face of program management.”³⁵ The company has a fully integrated team that offers services and support in design, procurement, fabrication, construction, project controls, safety, quality, and maintenance.

The firm’s project management tools are available “24/7 via Knowledge OnLineSM, Fluor’s award-winning knowledge management system.”³⁶ Fluor’s project software tool is MasterPlant, a “comprehensive integrated suite of design and process software and simulation tools for facilities design.” The company also uses its own project collaboration and document management tool for engineering, procurement, and construction management projects called NEXTGENERATION.³⁷

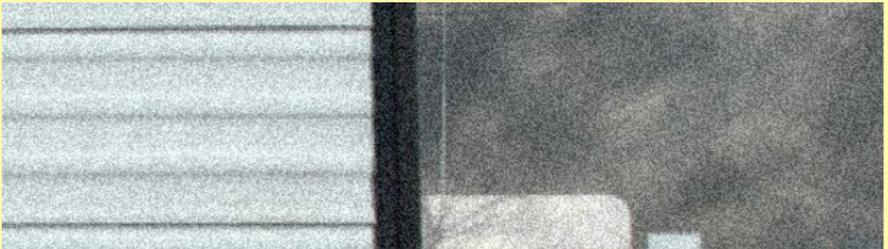
Strategy

Though the company has moved to secure more government-funded projects through the pursuit of disaster-related contracts following Hurricane Katrina, Fluor's first contract with the US government was a materials testing reactor in Idaho in the late 1940s. Fluor's first project in Puerto Rico was a refinery in San Juan, which was built in the 1950s.

Case Study: Temporary Housing Solutions in response to Hurricanes Katrina and Rita

Click below for more on this case's:

- < Introduction
- < Regulators



A sticker in the window of a temporary housing unit reads "NOT TO BE USED FOR HOUSING" (Nick Shapiro)

In its FEMA contracts, Fluor “uses U.S. small business to the maximum extent possible on its disaster recovery contracts to inject \$350 million into the affected local economies”³⁸ Following Hurricane Katrina, this entailed the purchasing of materials and supplies from vendors throughout the Gulf Coast region.³⁹

The subcontracts and subcontractors are not part of the official FEMA contract. The recipients are unlisted, and are only at least in part publicly available due to subsequent legal cases and legislative attention. In a 2008 report by Fluor’s Health, Safety & Environmental director, the initial work is outlined as follows: “In the days and weeks immediately following Hurricane Katrina, there was intense media scrutiny of the speed with which hurricane victims were receiving assistance. FEMA turned to Fluor for help in measuring the progress of the four contractors providing temporary housing along the US Gulf

Coast. Within five days, a Fluor team had designed and launched a website that tracked the real-time progress of the four contractors. Within a month, more than 400 government officials and others were regularly turning to the website for information. In addition, the Fluor team published FEMA's daily official housing report, which provided critical information on performance to the White House and other senior government officials."⁴⁰

Fluor managed the disbursement of \$700 million in contracts to its subcontracting team. Ninety percent of these contracts were directed to companies based in Louisiana, and 68 percent of the funding went to small businesses.⁴¹ In 2006, a hearing was held before the Federal Financial Management, Government Information, and International Security Subcommittee of the Committee on Homeland Security and Governmental Affairs of the US Senate. In this

hearing, FEMA stated the following: “Under these prime contracts [ed: Bechtel, Shaw, Fluor, and CH2M Hill], approximately 487 subcontractors, employing over 10,000 people, performed substantial work for FEMA. FEMA has found that utilizing private sector expertise to manage the projects, including overseeing of the performance of subcontractor work, is the most efficient method for responding to a large-scale disaster. FEMA retains oversight through its program management office, which is constantly interfacing with the prime contractors to ensure that the contractor is complying with contract requirements.”⁴²

In another legal suit in 2010, Fluor paid \$1 million to settle regarding undercompensated overtime to subcontracted employees inspecting FEMA trailers in Houston.⁴³

Section 692 of the Post-Katrina Act, “Limitations on Tiering of Subcontractors,” was

intended to address what many in Congress and the small business community, particularly in the hurricane-affected areas, felt was excessive tiering of subcontracts. These layers of subcontractors between the prime contractor and the subcontractor who actually performs the work, resulted in additional costs without providing what many felt was a legitimate purpose or added value.

Click below for more on this case's:

Stakeholders >

Stewards >

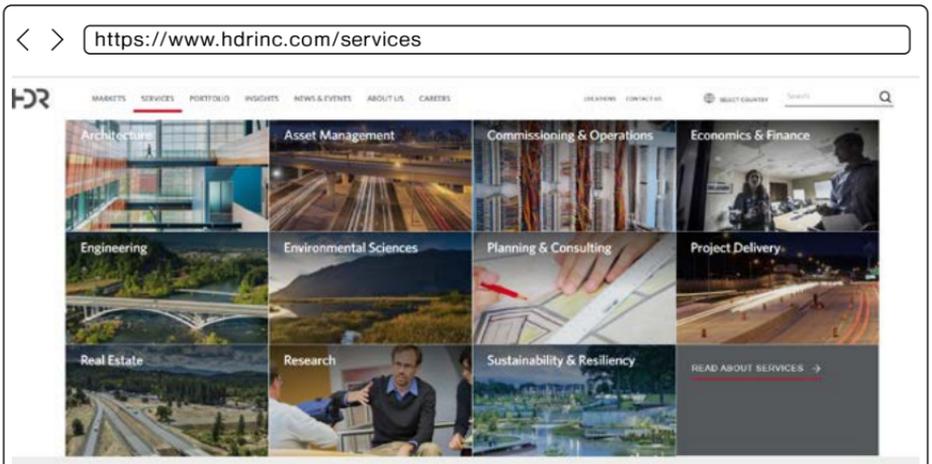
Company Acquired	Acquisition Date	Amount	Description
Stork Materials Testing and Inspection, Inc.	Dec 2015	\$755M	Stork is a provider of maintenance, modification, and asset integrity services for oil, gas, chemical, and power industries.
Phillips Service Industries, Inc.	Mar 2012	undisclosed	Phillips Service Industries designs and manufactures ball screws, actuators, and industrial components.
Goar, Allison & Associates, LLC.	Nov 2011	undisclosed	
J.A. Jones, Inc.	Nov 2003	undisclosed	

Fluor's recent acquisitions (Owler)⁴⁴

HDR

Services

HDR's services, as outlined on its website, cover a wide range: from Asset Management to Research, and Real Estate to Resilience. Each "service" page includes a description of the work that falls into that category, a list of team members, news pages, and related projects.



HDR's list of services (HDR)⁴⁵

One service that HDR offers is “Project Delivery,” which is aimed at streamlining project management.⁴⁶ The sub-categories listed are extensive, and many represent important aspects of the A&E System. For example, HDR outlines its project delivery services, such as Emergency Response, Procurement, and Public-Private Partnership.

Project Delivery Services

Construction Administration & Management

Construction Engineering & Inspection

Construction Management at Risk

Design-Build

Emergency Response

General Engineering Consultant (GEC)

Integrated Project Delivery (IPD)

Owner's Representative

Procurement

Program Management

Progressive Design-Build

Project Controls

Public-Private Partnership (P3)

Risk Management

Staff Augmentation

Survey & Reality Capture

HDR's project delivery services (HDR)⁴⁷

Case Study: Walter Reed National Military Medical Center

Click below for more on this case's:

< [Introduction](#)

< [Regulators](#)



HDR's proposed renovations at the Walter Reed National Military Medical Center (HDR)

The Walter Reed National Military Medical Center project was undertaken by HDR managers and employees from a multitude of service departments within the organization, including: Planning & Consulting, Architecture, Engineering, and Sustainability & Resiliency. Relevant government actors include the Department of Defense (Naval Facilities

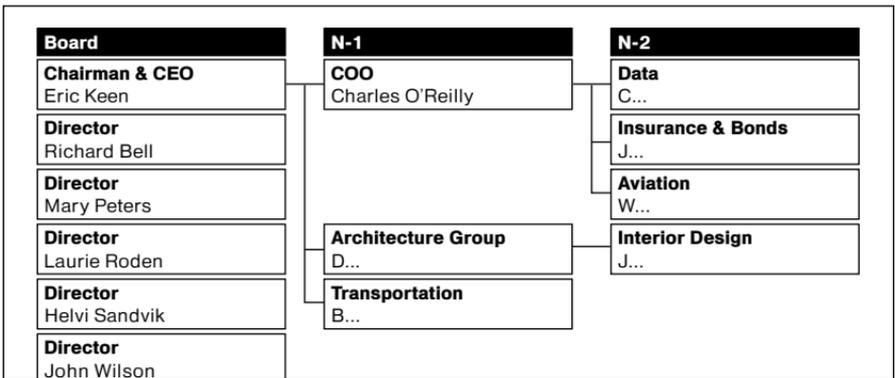
Engineering Command Atlantic), the National Capital Planning Commission, and the Joint Task Force National Capital Region Medical.

Click below for more on this case's:

Stakeholders >

Stewards >

Organization⁴⁸



Eric Keen became CEO of HDR in 2017 after holding other positions at the company, including COO. His work as a civil engineer has focused on transportation infrastructure

projects, such as the Hoover Dam Bypass.⁴⁹

Prior to the COVID-19 pandemic, industry watchdogs predicted that HDR was likely to benefit from a growing US construction industry, funded through various government projects. A 2019 report from GlobalData on HDR further emphasize this view:

“Growth is expected due to the government initiatives to renovate the country’s depleted infrastructure; and public and private sector investments in residential, commercial, healthcare, and educational infrastructure construction projects.”⁵⁰ This report also analyzes “opportunities” and “threats” based on recent contracts, partnerships, and governmental developments.

One opportunity, titled “New Contracts,” details various recent contracts and projects that secured large amounts of revenue for the following years. These include a five-year,

\$200 million contract in 2018 to provide public building services for the General Services Administration and a September 2018 solar feasibility study with WHN Solar in Mozambique.⁵¹ In August 2018, HDR entered into a strategic alliance agreement with Delos, a wellness real estate technology firm, focusing on “accelerating health and wellness innovations and outcomes-driven design in the built environment.”⁵² Another opportunity is the “Increasing Demand for Energy,” which cites World Energy Outlook reporting from 2018 regarding an expansion of global energy demand and consumption.⁵³ The “Opportunity” also notes that the industrial sector (mining, manufacturing, agriculture, and construction) is “expected to be the largest energy-consuming sector.”⁵⁴

Of note among the “Threat” category of this report are the threats of “Government

Contract Compliance” and “Regulations.” For US government contracts specifically, the report closely reads procurement laws and regulations as possibly leading to investigations, legal proceedings, and/or fiscal damages. Regulations in place such as the United Nations Framework Convention on Climate Change are listed as a possible “Threat” as they mandate significant emissions reductions, running counter to HDR’s “Opportunity” in the energy sector.

Project Management

HDR publicly describes its project management strategy by emphasizing the company’s ability to adapt and find solutions to clients’ individual problems.⁵⁵ The company underscores its expertise in choosing specific methods for complicated projects:

And we know the variations of these methods: finance-design-build (turnkey), finance-design-build-leaseback (development), finance-design-build-sellback (development), finance-design-build-operate (privatization), sale-leaseback (user develops and sells to other for leasing back to them), and program management at risk (PM @ Risk).

Each option has strengths and weaknesses. We not only take advantage of strong points but also limit and/or prepare for potential barriers to success.⁵⁶

Strategy

As of 2020, HDR has acquired seventeen companies.⁵⁷ Most recently, in June 2019, HDR acquired Hurley Palmer Flatt, Ltd., a consultancy company providing security,

fire risk management, critical engineering, and building design services.

Company Acquired	Acquisition Date	Amount	Description
Hurley Palmer Flatt, Ltd.	Jul 2019	undisclosed	Hurley Palmer Flatt is a consultancy company providing security, fire risk management, critical engineering, and building design services.
Andrew Reid & Partners	Jul 2019	undisclosed	Andrew Reid is a consultancy company that provides design and commissioning of mechanical and electrical building services.
Bradbrook Consulting Limited	Jul 2019	undisclosed	Bradbrook Consulting is a consultant company that provides civil and structural engineering and infrastructure design services.
Concentre Consulting, Ltd.	Jul 2019	undisclosed	Concentre Consulting is a construction consultancy that specializes in managing building information modeling.
Calthorpe Associates	May 2019	undisclosed	Calthorpe Associates is a provider of regional planning, urban design, and transit-oriented development services for public and private sector.

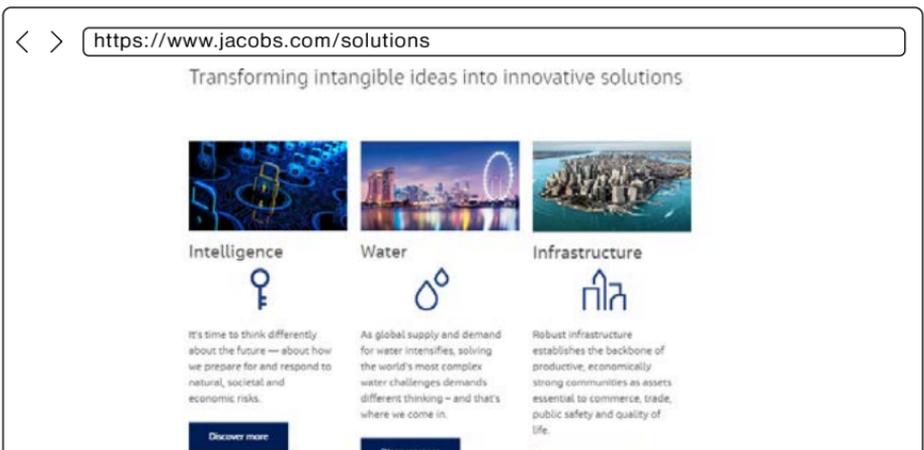
HDR's recent acquisitions (Owler)⁵⁸

In March 2012, HDR awarded Versar, a project management company offering construction, environmental, and engineering services for private and public sector clients, a \$23.4 million subcontract for “continued construction management and quality assurance operations in Afghanistan.”⁵⁹

JACOBS

Services

The “Solutions” page on the Jacobs website reads “Critical Solutions for a More Connected, Sustainable World.”⁶⁰ The services the company outlines fall into five types: Program & Construction Management; Consulting; Operations Management; Design-Build; and Construction, Maintenance, and Turnarounds. In all of these categories, Jacobs aims to “deliver excellence” to its clients.⁶¹



< > <https://www.jacobs.com/solutions>

Transforming intangible ideas into innovative solutions



Intelligence

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Water

As global supply and demand for water intensifies, solving the world's most complex water challenges demands different thinking — and that's where we come in.

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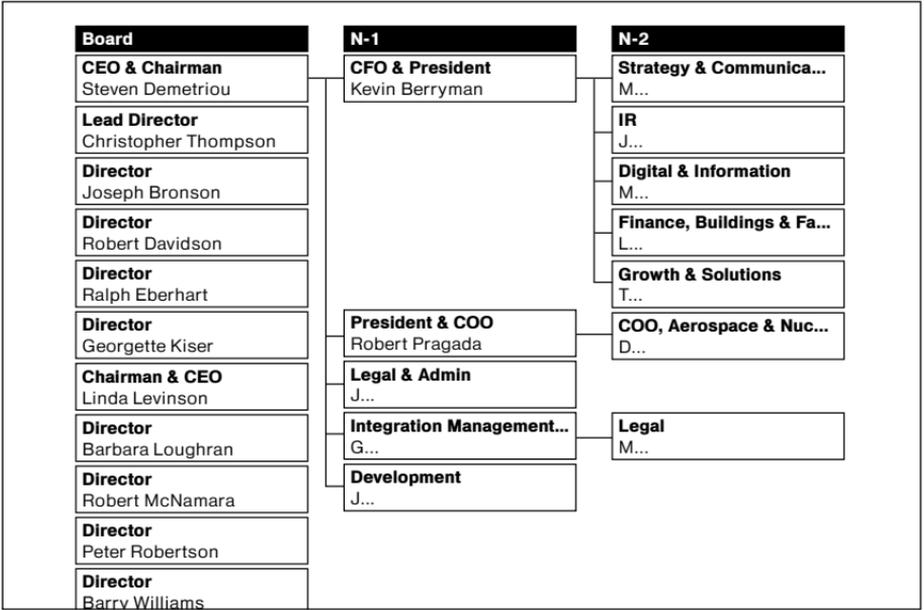
Infrastructure

Robust infrastructure establishes the backbone of productive, economically strong communities as assets essential to commerce, trade, public safety and quality of life.

[Discover more](#)

Jacobs' list of “Solutions” (Jacobs)⁶²

Organization⁶³



Steven Demetriou joined Jacobs as president and CEO in August 2015, becoming chairman of the board in July 2016. “He offers international business perspectives and more than thirty years in leadership and senior management roles to build on Jacobs’ strong foundations, including fourteen years in the role as Chief Executive Officer.”⁶⁴ Before

Jacobs, Demetriou was chairman and CEO of Aleris Corporation, an aluminum producer. Demetriou has experience working in related industries such as metals, specialty chemicals, oil and gas, manufacturing and fertilizers. Demetriou also worked at ExxonMobil for sixteen years and currently serves on the board of Kraton Performance Polymers.⁶⁵

Project Management

Jacobs emphasizes its ability to work “seamlessly with clients to coordinate multiple, related projects to achieve our clients’ goals and help them realize their vision.” Jacobs also emphasizes its ability to handle all elements of a project throughout its life cycle, highlighting the company’s “reliable program and construction management from start to finish.”⁶⁶

The firm’s project management website elaborates that:

As the No. 2 Program Management and No. 3 Construction Management-for-Fee firm as ranked by Engineering News-Record, Jacobs can deliver total design and construction management using our own talented resources; we can orchestrate the work of outside architects, engineers and contractors; or we can facilitate a combination of both to best suit the project requirements. From the pre-construction phase to construction to post-construction, we function as an extension of our clients, putting their best interests first and handling every aspect of design and construction delivery.⁶⁷

Jacobs has also underscored the effects of climate change on its work. In a 2018 interview, Jacobs CEO Steve Demetriou said:

Over the last five to ten years we've seen a rash of wildfires, destructive hurricanes, earthquakes and catastrophic floods, where we provide dynamic engineering, design and structural approaches to protect communities and enhance recoverability from these threats. Unique capabilities like advanced flood modelling and control technologies, innovative natural infrastructure approaches, and comprehensive recovery operations help us to address them in new ways. Within the mandate of resilience, we also provide services that help to ensure national defense and data security around the world.⁶⁸

Strategy

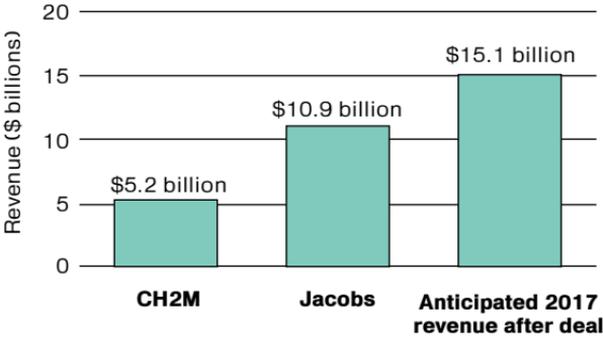
With a total of fifty-two thousand employees worldwide and an annual revenue of \$13 billion, Jacobs Engineering's major subsidiaries include Jacobs Technology, Inc. and CH2M Hill, a company with twenty thousand employees which

was acquired in December 2017.⁶⁹ The \$3.27 billion deal, which included CH2M's net debt, is reportedly one of the largest ever in engineering services.⁷⁰ When the agreement to purchase CH2M was announced, "many perceived it as a move to obtain infrastructure and government-services business."⁷¹ During the structuring of the acquisition, it was estimated that the created company would have a combined revenue of \$15.1 billion, with a sector breakdown of: 32 percent buildings and infrastructure, 24 percent aerospace and technology, 22 percent industrial, and 22 percent petroleum and chemicals.⁷²

CH2M Hill, based in Englewood, Colorado, was considered a leader in the water, transportation, environmental, and nuclear industries, bolstering those areas of Jacobs's portfolio.⁷³ This deal represents a trend of A&E firms' expanding by "strategically acquiring companies to add regional access and specific skill sets to their repertoires."⁷⁴

2016 Revenue: Jacobs vs. CH2M Hill

The recent merger is expected to increase Jacobs' annual revenue and save them \$150 million each year



Jacobs vs. CH2M Revenue and Anticipated 2017 revenue as a result of the merger, December 2017 (Construction Dive)⁷⁵

CEO Steve Demetriou said of the acquisition: “This is a transformative step change that brings together the industry’s foremost expertise and services to fulfill our vision to provide leading-edge solutions for a more connected, sustainable world.”⁷⁶

Following the deal, Barry Williams, former CH2M director, was appointed to the Jacobs board.⁷⁷ As of 2019, he was no longer a board member.

Case Study: Rockaway Revitalization and Storm Resiliency

Click below for more on this case's:

- < Introduction
- < Regulators



The Rockaway boardwalk (Jacobs)

The first phase of post-Sandy recovery was focused on repairing and restoring New York's beaches, which included "debris removal and salvage operations, demolition work, repairs to damaged boardwalks, renovation of damaged buildings, replacement of buildings with

elevated and storm-resistant models... under the direction of NYC Parks, in partnership with many agencies at the city, state, and federal levels, including NYC Department of Design and Construction and the U.S. Army Corps of Engineers.”⁷⁸ To accomplish the design and construction phase of the Rockaway boardwalk, Denver-based CH2M Hill, which has since been acquired by Jacobs, was awarded the contract and Skanska was selected to manage the construction process. WXY Architecture + Urban Design was hired in parallel to “rebuild the Rockaway boardwalk and to develop a conceptual plan to improve existing parks across the peninsula.”⁷⁹ The client is the New York City Economic Development Corporation, which has worked with CH2M Hill in the past and has a history of supporting hurricane recovery projects.

Click below for more on this case's:

[Stakeholders](#) >

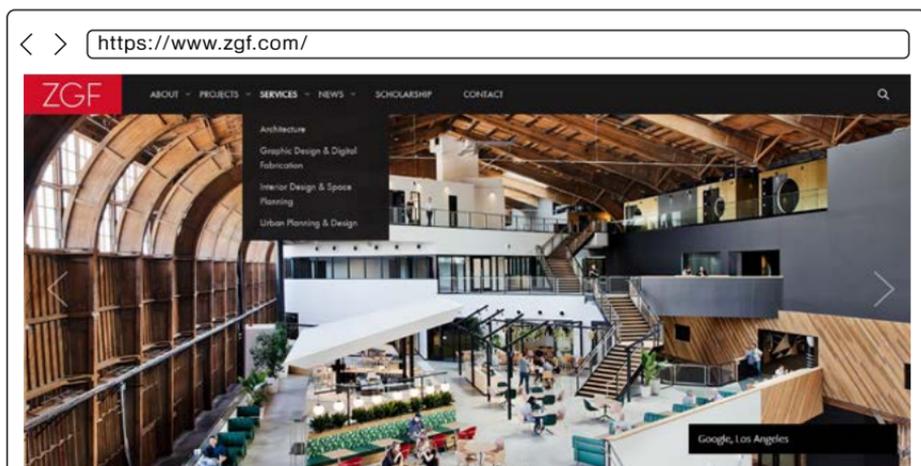
[Stewards](#) >

Company Acquired	Acquisition Date	Amount	Description
Keyw Holding Corp	Apr 2019	\$815M	KEYW provides cybersecurity and geospatial intelligence solutions for commercial and government sectors.
CH2M Hill Companies Ltd	Aug 2017	\$3.3B	CH2M is an engineering firm that provides design, construction, and operations services for industrial and government sectors.
Blue Canopy LLC	Aug 2017	undisclosed	Blue Canopy provides customized cyber security, data analytics, and application development solutions for finance, education, and healthcare sectors.
Aquenta Consulting Pty Ltd	Jan 2017	undisclosed	Aquenta Consulting is a provider of project management, planning, cost control, and integrated project services to the public and private sectors.
Van Dyke Technology Group	Apr 2016	undisclosed	Van Dyke Technology specializes in providing identity management and enterprise cyber security services to the government and commercial sectors.

Jacobs's recent acquisitions (Owler)⁸⁰

Services

ZGF's services all fall under the heading of "Design and Architectural Services."



ZGF's homepage and list of services (ZGF)⁸¹

ZGF does not have a CEO or one particular figurehead. The private company has several key principals and partners at each location. Any holistic understanding of ZGF's work is challenged by the lack of available material outside of the firm's in-house press relations and external press coverage. ZGF's small

size and private ownership structure has kept it largely out of critical discourse and the public eye.

Based on its own publicity materials, ZGF aims to be a model for midsize firms, putting sustainability at the forefront of its work. A press release from October 2019 recognizes the impact of the architecture and engineering sectors on the changing climate and includes a statement of purpose for the firm going forward. The company outline a series of principles, committing ZGF projects to considering the concept of embodied carbon, addressing carbon sequestration, and to “reduce impact of the worst materials.”⁸²

Case Study: St. Elizabeths West Campus

Click below for more on this case's:

< [Introduction](#)

< [Regulators](#)



ZGF's proposed design for the St. Elizabeths West Campus (ZGF)

ZGF was selected as the lead design architect for the DHS Headquarters, the largest federal project recently in progress. ZGF's architect Otto Condon has been working closely with the GSA on the masterplan design.⁸³ The design team includes Einhorn Yaffee Prescott, the Syska Hennessy Group, OLIN, and Thornton Tomasetti.⁸⁴ At the same

time, the GSA has been in conversation with all the different agencies that are part of this consolidation, including the DHS, National Capital Planning Commission, FEMA, and the U.S. Coast Guard. Other companies involved in the master plan design include: Stantec (NEPA Compliance), Goody Clancy (Cultural Resources), Jacobs Engineering Group (Air Quality, Noise, Transportation), and O. R. George & Associates, Inc. (Traffic Data Collection).⁸⁵

Click below for more on this case's:

Stakeholders



Stewards



Project Management

The firm does not have a publicly-visible description of its overarching project management ethos, but many ZGF employees have worked as project managers.⁸⁶ Bob Snyder, a principal at ZGF, states in his biography that he “sees project management as the art of taking ideas into the physical world to help people reach their aspirations.”⁸⁷ Similarly, principal Eddie Kung’s bio notes that he has led “multi-disciplinary teams and collaborated with clients, project stakeholders, and construction entities through all phases of project delivery and in varying delivery methods. His approach to successful project outcomes stems from his leadership and team management skills that meet the needs of the client.”⁸⁸

Strategy

ZGF is a privately-owned company and consequently publicly available information on the firm is limited. A July 2019 Hoover's Company Records report indicates that ZGF is a "low risk company."⁸⁹ Although information on the firm's procurement process is not publicly available, the firm does bid for contracts with the federal government. In 2019, for example, the firm was selected for a \$130 million contract with the U.S. Army.⁹⁰ The firm also has employees whose biographies specify that some of its work involves "bid negotiations." As of May 2020, ZGF has not acquired any other companies.

Management takes many forms in the A&E System. It provides a corporate structure to the firms themselves, which are made up of various leaders, departments, teams, and

subcontractors. These networks emerge on the company websites and organizational charts constructed on third party sites.

Management also functions as a service that the firms provide, often categorized and labeled differently across and specific to a particular project, but ultimately providing managerial expertise to the client. This expertise is a component of the larger procurement structure, tied to shifting regulations and laws, with notable changes over the last twenty years. Examining these firms and specific case studies shows that in the A&E System expertise is multivalent, pertaining not only to project operations, but increasingly to project acquisition and planning.

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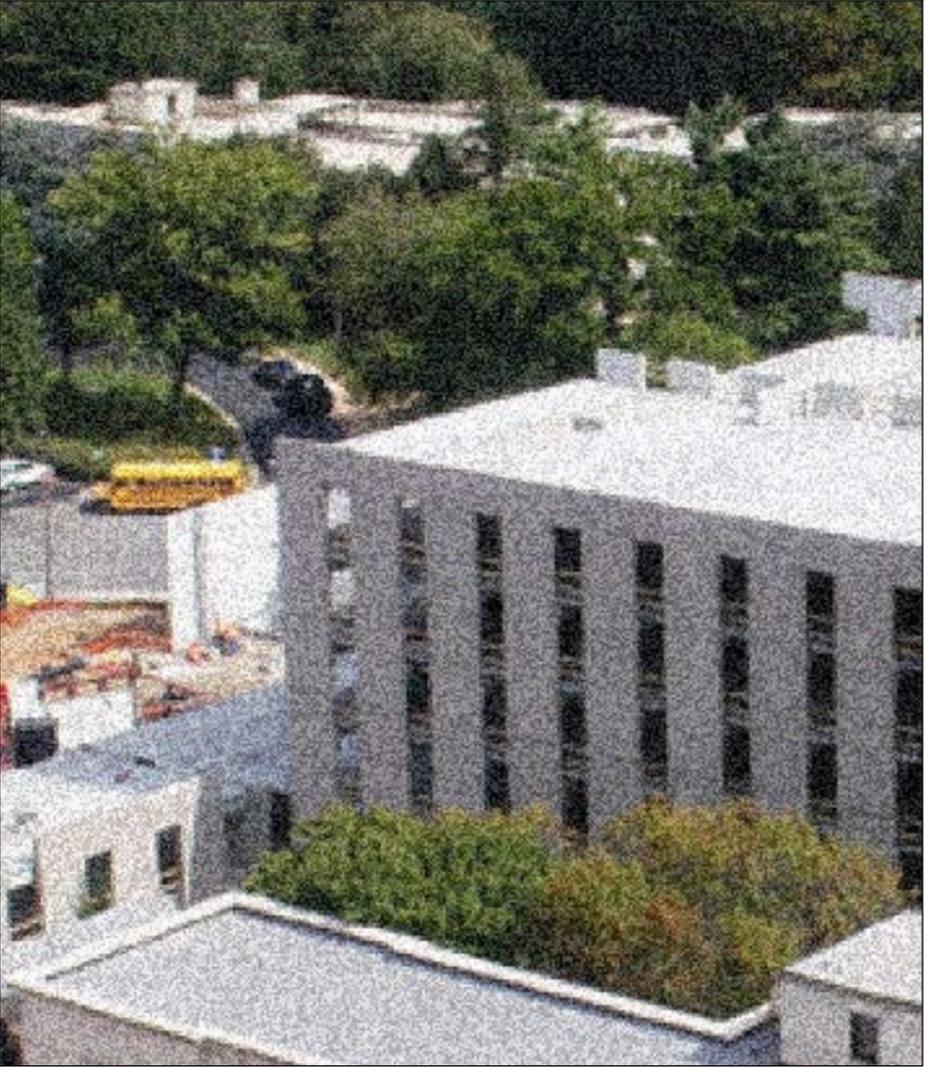
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STAKEHOLDERS



Construction at Walter Reed National Military Medical Center (*Building Design & Construction*)

Stakeholders

Who, and what, is impacted by the A&E System—and who can make claims on its effects?

The A&E System impacts a range of actors whose decisions, perceptions, participation, and resistance in turn affect not only the built environment, but also feed back into the system, shaping its concerns and outputs. From the decision-making perspective, shareholders and investors tend to hold sway over firms' priorities, with the bottom line always in sight. But this often myopic focus on profit doesn't prohibit other impacted actors—often outside the firms but still inside the system—from registering competing priorities. So while shareholders can take precedence, laborers and other communities nonetheless demonstrate how the system's rhetoric is often at odds with

the “facts on the ground.”

Much of what is publicly discussed and understood about A&E firms relies on the companies’ own documentation. Information about the A&E System’s stakeholders is here largely drawn from publicly available shareholder and stock information, annual reports and investor statements, and firm websites and press releases.

In August 2019, the Business Roundtable (BRT), an association of CEOs of leading US companies, met in order to “redefine the purpose of a corporation to promote ‘an economy that serves all Americans.’” This commitment included:

- Delivering value to customers
- Investing in employees
- Dealing fairly and ethically with suppliers
- Supporting communities where they work
- Generating long-term value to shareholders¹

This shift in the BRT’s official stated position since 1997—from “shareholder primacy” to “value for all stakeholders”—came as a result of mounting public criticism regarding what has long been an elevation of the bottom line over competing demands from environmental justice and organized labor. While a noteworthy commitment, skeptics highlight the complications and viability of “putting stakeholders first.”² The 181 signatories of the BRT statement included Mike Burke, chairman and CEO of AECOM; Carlos Hernandez, CEO of Fluor; and Steve Demetriou, chair and CEO of Jacobs.³ Of the five firms studied here, these three—AECOM, Fluor, and Jacobs—are publicly traded, and therefore have higher levels of public accountability, at least to a particular portion of their stakeholders.

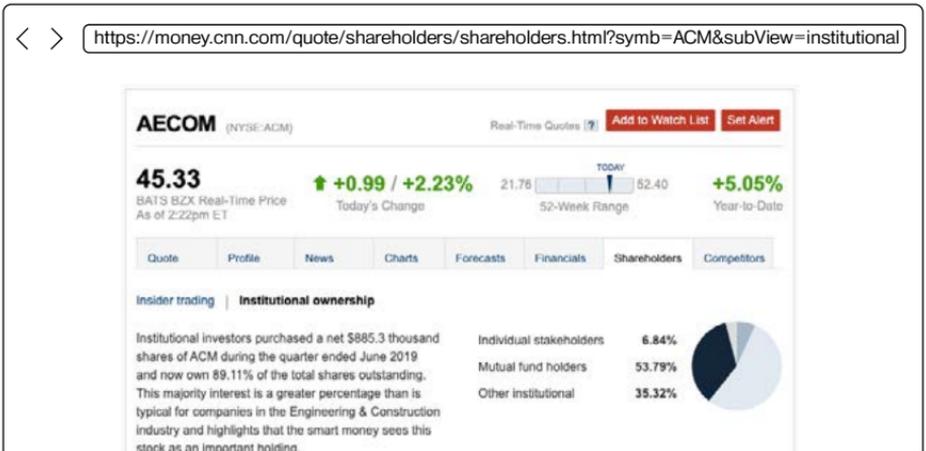
AECOM

Investment

AECOM first went public in 2007 and was subsequently valued at \$2 billion.⁴ The investor section of its website details corporate governance, stock information, quarterly and annual reports, and investor presentations.⁵

In a May 2020 shareholders call, Troy Rudd, then AECOM's executive vice president and chief financial officer, and later its CEO said: "We are positioning to capitalize on substantial stimulus and emergency COVID-19 response efforts in our international markets. This includes a more than \$700 billion infrastructure investment program in the U.K., along with approximately \$100 billion of stimulus funding in Australia and Hong Kong. As a result, with very favorable funding conditions in our largest international markets, we are

poised to capitalize on a growing opportunity set that is well suited for our leading capabilities.”⁶ In its May 2020 investor presentation, AECOM noted that nearly 60 percent of its clients are in the public sector, “which are poised to invest in COVID-response efforts and in infrastructure with already-approved funding from economic stabilization and stimulus programs.”⁷



AECOM's New York Stock Exchange profile, October 6, 2020 (CNN Business)⁸

< > <https://money.cnn.com/quote/shareholders/shareholders.html?symb=ACM&subView=institutional>

Top 10 Owners of AECOM

Stockholder	Stake	Shares held	Total value (\$)	Shares bought/sold	Total change
PRIMECAP Management Co.	14.18%	22,713,471	897,409,239	-134,369	-0.94%
Fidelity Management & Research Co...	12.21%	19,588,022	775,927,748	-421,055	-0.19%
The Vanguard Group, Inc.	8.70%	13,949,978	551,163,631	+27,721	+0.20%
BlackRock Fund Advisors	7.62%	12,225,269	485,020,378	+1,548	+0.01%
AllianceBernstein LP	4.96%	7,310,859	286,844,137	+8,966,192	+1,622.25%
Barron, Hanley, Bushonney & Stre...	3.91%	6,265,372	247,702,888	+8,269,373	--
Starboard Value LP	2.72%	5,975,260	236,092,750	0	0.00%
Stora Funds Management, Inc.	2.51%	4,232,025	169,308,493	-18,222	-1.05%
Renaissance Technologies LLC	1.97%	3,165,115	125,053,634	-1,337,909	-10.71%
Invesco Advisors, Inc.	1.80%	2,887,609	118,636,481	-455,331	-11.67%

AECOM's top 10 owners, October 6, 2020 (CNN Business)⁹

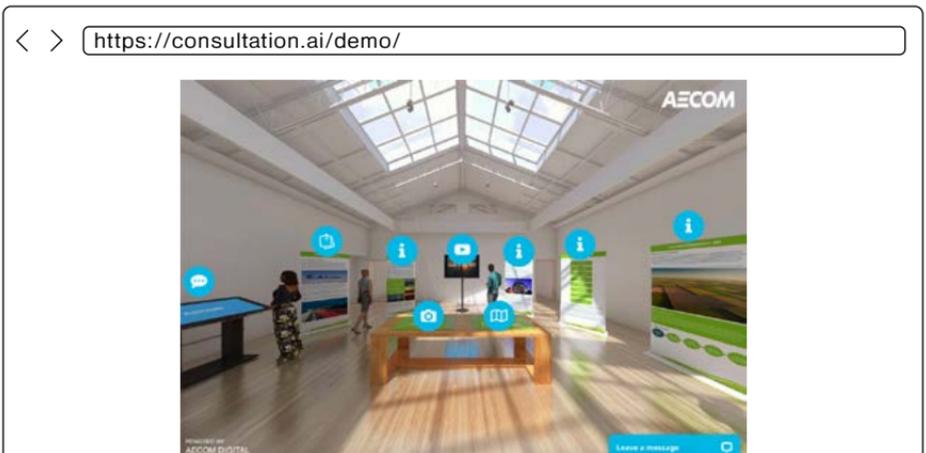
Engagement

In May 2020, AECOM launched “AECOM Environmental Engagement,” a platform that “streamlines environmental documentation and stakeholder engagement throughout the environmental assessment process.” This platform had been initially developed by AECOM for public and private clients in Australia, but was scaled up during the coronavirus pandemic. According to Michael S. Burke, AECOM’s

former CEO, “With AECOM Environmental Engagement, we are pleased to add to the company’s expanding suite of digital solutions that simplify and accelerate public reviews of infrastructure projects that can lead to improved outcomes for communities worldwide. This innovative platform reflects the collaboration of our global experts who continue to find ways to reduce complexity that saves our clients money and time, and that can help them overcome barriers created by the unfolding coronavirus pandemic.”¹⁰

The Virtual Public Consultation Tool, which was also designed and developed in response to the pandemic, “allows clients to engage and consult stakeholders... providing a more resilient approach to community engagement.”¹¹ Andy Thomas, AECOM’s head of Visualization & Virtual Reality in Europe, Middle East, and Africa, explains: “We already

use a number of digital tools during our community engagement sessions such as visualizations, sound demonstrations, and interactive apps, so it makes sense to bring them together on a digital platform.”¹²



AECOM's virtual consultation demo (AECOM)¹³

AECOM has made significant investment in boosting the viability of large-scale infrastructure projects in which they are involved. In January 2019, they released a report, titled *The Future of Infrastructure: Voice of the People*, which surveyed over ten thousand

residents of ten major cities (Chicago, Hong Kong, London, Los Angeles, Mumbai, New York, Riyadh, Singapore, Sydney, and Toronto).¹⁴ The results of the survey indicated that citizens feel that cities underperform when it comes to engaging with the public on infrastructure. Nearly half of those surveyed also conveyed to AECOM that they would be inclined to divulge personal data, which the report notes is “the lifeblood of smart cities,” to aid in the improvement of infrastructure and services. In response to the report’s findings, then CEO Michael Burke summarized: “Residents of cities around the world want greater say in infrastructure planning, and they are growing impatient with delays in the delivery of modern infrastructure systems that can improve mobility, connectivity, and quality of life. Their views should be a call to action for wider government engagement, and new

public and private partnerships that can advance ideas, funding and advocacy, and speed the projects that lead to growth and urban well-being.”¹⁵

Case Study: U.S. Army Pacific Mission Command Facility

Click below for more on this case's:

- < [Introduction](#)
- < [Regulators](#)
- < [Managers](#)



AECOM's proposed design for the Mission Command Facility (AECOM)¹⁶

AECOM facilitated “highly interactive stakeholder workshops and charrettes” with the U.S. Army Corps of Engineers (Honolulu District), various military end-user organizations, and the command historian and installation master planner to inform the design of the Mission Control facility in Honolulu. During phase one, the construction site was opened up to Fort Shafter residents so they could see the site’s progress.¹⁷

AECOM reportedly underwent “thousands of hours of customer meetings” to create the final design. The company emphasizes the work it did with stakeholders and their role in defining the project, noting that during a workshop showing different potential iterations of the design, a “consensus was reached for a concept that completely reimaged previous notions of the project.”¹⁸

Senior vice president and principal at AECOM Michael Brennan summarized the process, saying that “at its core, the Fort Shafter Mission Command Facility is designed to be secure, functionally efficient, operationally flexible, and a source of pride for the Army and the local community. An innovative approach to collaboration has established a standard of architectural excellence for future projects.”¹⁹

Click below for more on this case’s:

Stewards



While not a federally-funded project, the Champlain Hudson Power Express (CHPE) has been met with fierce criticism from community members along its proposed route. AECOM was engaged by Transmission Developers Inc. to be the owner’s engineer for the 333-mile electric powerline, which

would connect to Hydro-Québec’s transmission system, cross the US–Canada border near the New York–Vermont border, and terminate in Astoria, Queens.²⁰ It is being developed with private sector investment, led by the Blackstone Group LP. First proposed in 2008 and initially expected to be operational by 2017, construction is now slated to begin in 2021, with the line fully functional by 2025.²¹ As a cross-border project with implications for Indigenous and national sovereignty, it prompts questions regarding overlapping jurisdictions, environmental justice, and the merits of “cleaner” energy. Several communities in North Rockland County, NY initially opposed the project “due to significant potential for environmental damages, property damage, loss of life, victims, economic hardship, threats to job creation, community and individual public health and safety.”²² In 2018, Transmission

Developers Inc. published a press release stating that they had signed a memorandum of understanding with the five North Rockland County towns, agreeing to an alternate project route through Rockland County and \$31 million “to fund capital improvements in the host community towns.”²³ The project has also been challenged by environmental organizations like Riverkeeper and the Sierra Club, who link Hydro-Québec’s hydropower production in Canada to the continued disenfranchisement of Indigenous peoples.²⁴

Safety

The A&E System is entangled with recovery and investment following disasters, frequently regulated by large, open-ended contracts with the federal government. As such, efforts geared toward safety and support, broadly conceived, are often incorporated into how a

firm relates itself to outside stakeholders.

Internally, for example, AECOM's chief operating officer Randy Wotring maintained that "living by our Safeguard value and prioritizing both safety and integrity cultivates a culture that inspires our employees, builds trust with clients and business partners and delivers results for the company and our investors."²⁵

While externally, AECOM has linked this orientation with its employees' individual activities in the field: "AECOM's global commitment to providing support for natural disaster recovery is extended by employee volunteers. Steve Willey, AECOM construction manager, helped to save victims in the aftermath of the earthquake in Port-au-Prince, Haiti. In response to the floods that devastated Pakistan, offices collected donations of blankets, clothing, shoes and nonperishable food items to be sent to local agencies for distribution;

monetary donations were also matched by AECOM.”²⁶

FLUOR

Investment

In 2000, Fluor announced that they would be splitting into two companies that would then both become publicly traded, following shareholder approval. The “new” firm was renamed Massey Engineering Company, and it first went on the New York stock exchange in December of that same year. The remaining company (Fluor) became publicly traded later that same month.²⁷

< > <https://money.cnn.com/quote/shareholders/shareholders.html?symb=FLR&subView=institutional>

Fluor Corp (NYSE:FLR) Real-Time Quotes Add to Watch List Set Alert

10.05 ↑ +0.34 / +3.50% 2.85 TODAY 20.90 -46.77%
BIATS BXZ Real-Time Price As of 2:26pm ET Today's Change 52-Week Range Year-to-Date

Quote Profile News Charts Forecasts Financials Shareholders Competitors

Insider trading | **Institutional ownership**

Institutional investors purchased a net \$7.3 million shares of FLR during the quarter ended June 2019 and now own 67.79% of the total shares outstanding. This majority interest is a greater percentage than is typical for companies in the Engineering & Construction industry and highlights that the smart money sees this stock as an important holding.

Mutual fund holders **39.63%**
 Other institutional **28.16%**
 Individual stakeholders **2.67%**

Fluor's New York Stock Exchange profile, October 6, 2020 (CNN Business)²⁸

< > <https://money.cnn.com/quote/shareholders/shareholders.html?symb=FLR&subView=institutional>

Top 10 Owners of Fluor Corp

Stockholder	Stake	Shares owned	Total value (\$)	Shares bought / sold	Total change
The Vanguard Group, Inc.	8.40%	11,774,804	112,004,230	-1,101,986	-8.57%
BlackRock Fund Advisors	7.33%	10,270,910	97,379,063	-1,208,364	-10.46%
Hitchins & Wiley Capital Manage...	5.00%	7,117,185	67,355,601	-1,195,440	-14.28%
The Calixte de dépôt et placement...	4.90%	6,936,898	66,039,269	0	0.00%
3iGA Funds Management, Inc.	3.43%	4,609,531	45,786,730	+1,674,870	+28.78%
Koch Industries, Inc. (Investment...	2.20%	3,129,990	26,797,124	+3,129,990	-
Two Sigma Advisors LP	1.80%	2,567,900	24,361,208	-45,590	-1.75%
Northern Trust Investments, Inc. (...)	1.66%	2,313,206	22,021,721	+1,088,044	+47.58%
D. E. Shaw & Co. LP	1.60%	2,247,408	21,395,324	-9,241,140	-95.98%
Geode Capital Management LLC	1.52%	2,131,201	20,289,634	+683,030	+29.45%

Fluor's top 10 owners, October 6, 2020 (CNN Business)²⁹

Engagement

“Community” appears regularly in Fluor’s public outreach, referring both to its employees and to constituents of its projects. Within the “Sustainability” section of the company’s website, there is a “Community” subheading. The summary text reads: “While Fluor’s core business centers on designing, constructing, and maintaining complex and challenging capital projects, providing service to the communities in which Fluor employees live and work is Fluor’s privilege.”³⁰ Community here signals community relations both internal to Fluor, and outside of the company itself. Similarly, Fluor’s 2018 sustainability report, *Transforming the World*, includes a chapter on “Community and Social Services.” In it, the company writes: “At Fluor, we believe if communities thrive, so do their businesses and residents. The stability of a community is

affected by the condition of its infrastructure and its ability to attract and retain talent.”³¹ From “Volunteerism” to “Nurturing a Highly Skilled, Diverse Workforce and Providing an Outstanding Workplace,” the report uses people-focused language to describe sustainability, both in terms of particular initiatives and as an employment strategy.



Figures from Fluor's 2018 Sustainability Report (Fluor)³²

Case Study: Temporary Housing Solutions in response to Hurricanes Katrina and Rita

Click below for more on this case's:

< Introduction

< Regulators

< Managers



A sticker in the window of a temporary housing unit reads "NOT TO BE USED FOR HOUSING" (Nick Shapiro)

According to Fluor, for this project the company's "ultimate customers were the communities and people of Louisiana, whose lives were disrupted and forever changed when Hurricanes Katrina and Rita ravaged the region."³³

Fluor came under scrutiny for “Task Order 20,” an Individual Assistance, Technical Assistance Contract (IATAC) with a USAspending.gov Award ID HSFEHQ-05-J-0020, later renumbered HSFEHQ-06-J-0011.³⁴ “Task Order 20” was the directive to “haul/install THUs [temporary housing units] to house victims of Hurricanes Katrina and Rita,” and subsequently maintain them.³⁵

A 2008 Department of Homeland Security, Office of Inspector General report reads: “We question how FEMA determined that the amounts invoiced were allowable and reasonable,” in part referring to Fluor’s architecture services contract.³⁶ Within that contract, Fluor billed FEMA \$20 million to purchase tents in which to temporarily house up to three hundred thousand Katrina evacuees on a Fluor-prepared site. However, Fluor had failed to conduct a required site inspection for the basecamp, and FEMA’s inspection found the

planned site unusable. FEMA nonetheless paid Fluor the \$20 million, even though the base-camp was never erected. From its limited inquiry into FEMA fraud billing, the inspector general also noted that \$8.7 million was paid to cancel the lease for the basecamp site, which FEMA also issued despite Fluor failing to conduct the mandated site inspection.³⁷

As part of the same contract (HSFEHQ-06-J-0011), Fluor installed and maintained FEMA-issued trailers as “temporary housing units” in the aftermath of the disaster. Fluor’s fifty-four thousand temporary trailers, which often became semi-permanent or permanent homes for those displaced, were built with composite wood and plywood panels fabricated using formaldehyde, a known carcinogen. The formaldehyde found in the air of the trailers exposed residents to hazardous fumes on average five times (in some cases forty times) greater than what individuals are normally

exposed to in US homes.³⁸ Through a 2012 class action settlement, Fluor, Shaw, Bechtel, and CH2M Hill—the four no-bid contractors—paid \$5.1 million in damages for their role in installing and maintaining the trailers.³⁹ An additional \$42.6 million settlement was paid by the trailer manufacturers and third-party trailer procurers, which, when combined, offered the fifty-five thousand plaintiffs across Louisiana, Mississippi, Texas, and Alabama, around \$4,000 each. Though the the Centers for Disease Control and Prevention declared the trailers not fit for human housing, many people still call the trailers home, and FEMA has used returned trailers in other disasters since.⁴⁰

Click below for more on this case's:

Stewards



Safety

In parallel with the proliferation of community-oriented language across Fluor's website, the concern for stakeholders also appears in relation to safety. The same "Sustainability" menu category that houses the "Community" page also includes a section titled HSE, or Health, Safety, Environmental. It states: "Safety is Fluor's first Core Value. Fluor is committed to developing a caring, preventive safety culture across our organization. Safety drives the actions of every employee at every location, every day. Our people deserve it. Our clients demand it. Our performance depends on it. We are Safer Together. That's the Fluor way."⁴¹ HSE logics are central to how Fluor operates as a company, in relation to its employees, and to the marketing and production of the work itself.

VOTING MATTERS	
Stockholders are being asked to vote on the following matters:	
PROPOSAL	BOARD'S VOTING RECOMMENDATION
1 The election of the thirteen directors named in the proxy statement to serve until the 2020 annual meeting of stockholders and until their respective successors are elected and qualified. (page 1)	FOR All Thirteen Directors
2 An advisory vote to approve the Company's executive compensation. (page 21)	FOR The Advisory Vote
3 The ratification of the appointment by our Audit Committee of Ernst & Young LLP as independent registered public accounting firm for the fiscal year ending December 31, 2019. (page 68)	FOR The Ratification of Ernst & Young LLP
4 If properly presented at the annual meeting, a stockholder proposal requesting adoption of greenhouse gas emissions reduction goals. (page 72)	AGAINST The Stockholder Proposal

Issues voted on by Fluor's shareholders, May 2019 (Fluor)⁴²

In May 2019, at their annual meeting, Fluor shareholders voted on four issues.⁴³ Notably, the 2019 Proxy Statement includes a shareholder proposal from the New York State Common Retirement Fund to adopt company-wide goals to reduce greenhouse gas emissions and publish a plan by December 2019. The proposition failed to pass (and was advised against by the board of directors), but received support from 42.9 percent of shareholders, and has since been proposed at other energy companies and corporations with mixed results.⁴⁴

HDR

Investment

In 1983, HDR was purchased by the French construction company Bouygues SA, and remained internationally owned for thirteen years. In 1996, HDR employees purchased the company back from Bouygues SA, instituting an employee ownership model that remains in place to this day.⁴⁵ “Investment” therefore means something different at HDR. In the company’s own words: “You can feel it every day—employee ownership shapes our culture. That means the success of our company, and where we go from here, rests on all of our shoulders. It makes us accountable to ourselves and to each other. It’s our company, and our actions and engagement make the difference.”⁴⁶ This semi private corporate structure means that visibility into HDR’s finances is limited.

Engagement

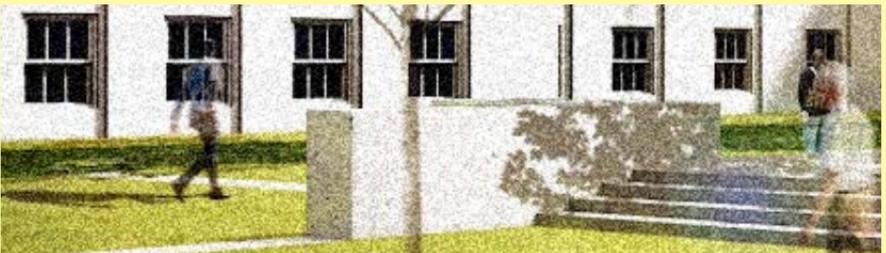
One question that HDR poses to itself on the company's website is: "What's our impact on the world?" Its response: "We're all in this together." "Both as individuals and as a company, we take pride in supporting efforts to better our communities—not just financially, but also with our time. Whether it's providing basic needs, beautifying a public place or leading enriching activities, we are passionate about being engaged. Many of our team members also volunteer with aid organizations such as Bridges to Prosperity and Engineers Without Borders, giving their time and sharing their professional talents to provide communities around the world access to healthcare, clean water and modern energy grids. And through Design 4 Others, more than two hundred of our employees have provided architecture, engineering and planning services to communities in need."⁴⁷

HDR's charitable foundation was started in 2012, as part of the company's stated commitment to the communities in which they live and work. The foundation is almost entirely funded by donations from HDR employees and has collected nearly \$3 million in grant funding for organizations under three focus areas: education, healthy communities, and environment.⁴⁸

Case Study: Walter Reed National Military Medical Center

Click below for more on this case's:

- < Introduction
- < Regulators
- < Managers



HDR's proposed renovations at the Walter Reed National Military Medical Center (HDR)

Throughout the design process for the Walter Reed expansion and renovation, the Navy was required to consult with the National Capital Planning Commission (NCPC), the central planning agency for federal activities in the national capital region. NCPC first approved the preliminary plan for the medical center addition in December 2013.⁴⁹ Additional information on the recommendations given by the NCPC are listed in the National Director Planning Commission’s Executive Director’s Recommendation.⁵⁰

Click below for more on this case’s:

Stewards



Safety

“Health and Safety” falls under the “Corporate Responsibility” section of HDR’s website,

alongside “Community Involvement and Support,” “Inclusion and Diversity,” and “Sustainable Business Practices.” Safety, then, focuses primarily inward, toward the company’s employees: “We foster a culture of safe behavior to ensure a safe work environment both in the office and on our project sites. Careful planning, comprehensive training, continual observation and feedback, root cause analyses and consistent management support are the cornerstones of our philosophy that ‘good enough’ is never good enough when it comes to safety.”⁵¹

JACOBS

Investment

Jacobs has been a publicly-traded company since 1970. When it first went public, approximately

200

40 percent of the stock was still held by the Jacobs family.⁵² In the most recent shareholder presentation in May 2020, Jacobs pointed toward areas of growth, including “aligning around national government priorities” and “focusing on technology-enabled delivery.”⁵³ Jacobs’s board of directors includes at least 20 percent women, as recognized by the national campaign “2020 Women on Boards.”⁵⁴

< > <https://money.cnn.com/quote/shareholders/shareholders.html?symb=JEC&subView=institutional>

Jacobs Engineering Group Inc (NYSE:J) Real-Time Quotes ⓘ [Add to Watch List](#) [Set Alert](#)

97.45 ↑ +1.08 / +1.12% 59.29 52-Week Range 104.00 TODAY +8.48%
BATS BZX Real-Time Price As of 2:27pm ET Today's Change Year-to-Date

[Quote](#) [Profile](#) [News](#) [Charts](#) [Forecasts](#) [Financials](#) [Shareholders](#) [Competitors](#)

Insider trading | **Institutional ownership**

Institutional investors hold a majority ownership of J through the 88.62% of the outstanding shares that they control. This interest is also higher than at almost any other company in the Engineering & Construction industry. Last, during the quarter ended June 2019, these large investors purchased a net \$676.6 thousand

Individual stakeholders	5.01%
Mutual fund holders	45.44%
Other institutional	43.38%

Jacobs’s New York Stock Exchange profile, October 6, 2020 (CNN Business)⁵⁵



<https://money.cnn.com/quote/shareholders/shareholders.html?symb=JEC&subView=institutional>

Top 10 Owners of Jacobs Engineering Group Inc

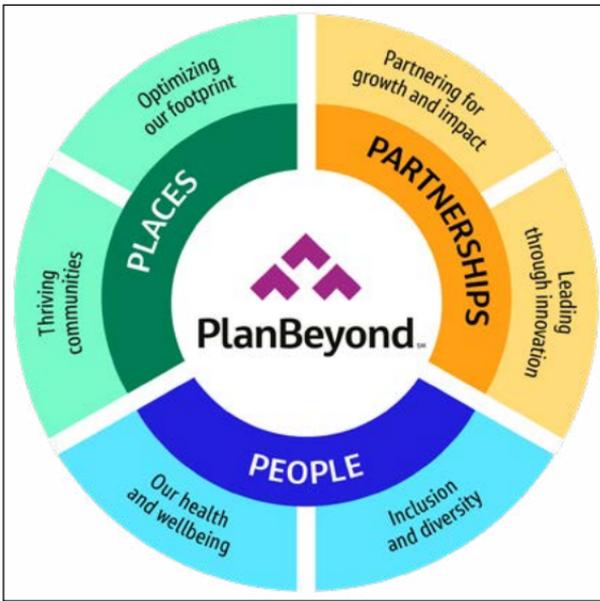
Stockholder	Stake	Shares owned	Total value (\$)	Shares bought/sold	Total change
The Vanguard Group, Inc.	10.99%	14,315,283	1,292,240,596	-810,532	-0.36%
Stig4 Funds Management, Inc.	6.83%	8,895,041	802,955,361	-230,326	-0.62%
PRIMECAP Management Co.	5.62%	7,311,972	666,051,712	-349,460	-4.96%
Select Equity Group LP	5.13%	6,861,022	602,096,856	-185,719	-2.42%
BlackRock Fund Advisors	4.74%	6,177,305	557,625,322	-231,440	-0.61%
Russ, Cunniff & Goldfarb LP	3.22%	4,198,002	379,953,641	-44,761	-1.06%
T. Rowe Price Associates, Inc. (I...	3.11%	4,047,260	365,344,305	-1,200,833	-23.75%
AllianceBernstein LP	2.83%	3,681,819	332,357,801	+344,406	+10.32%
Wells Capital Management, Inc.	2.18%	2,841,488	256,501,122	+188,808	+7.12%
Barrow, Hankley, Meskinney & Strou...	2.02%	2,629,342	237,350,702	-897,392	-25.23%

Jacobs's top 10 owners, October 6, 2020 (CNN Business)⁵⁶

Engagement

Jacobs’s engagement program is closely tied with its sustainability strategy, linking who the company employs, how it operate its business, and the communities in which it works. “We live and play in the communities where we work—so we’re personally invested in doing what is right for people in the places and communities we’re connected with. We provide infrastructure, technology, and intelligence solutions to help communities build

resiliency today for a better tomorrow.” Jacobs is also “committed to giving back, engaging with communities, and building enduring partnerships.”⁵⁷



Graphics from Jacobs’s sustainability program “Plan Beyond” (Jacobs)⁵⁸

Jacobs’s approach to sustainability is incorporated into a program they call PlanBeyond. As CEO Steve Demitrou explains on the

company website, “It’s about planning beyond today for a sustainable future for everyone. For us, this means social and economic progress while protecting our environment and improving resilience. It is also about being the employer of choice for our people and being the go-to solutions provider for a more connected, sustainable world.”⁵⁹ Jacobs incorporates stakeholders, both internal and external, into this plan, as seen in its “sustainability priorities matrix”—where one axis indicates importance to internal and external stakeholders, while the other exhibits the purported actual ability to influence change. The company explains, “the sustainability priorities matrix below presents the findings of our materiality assessment. The assessment comprised stakeholder engagement, industry benchmark and other research, and the findings have informed our strategic sustainability priorities and focus areas.”⁶⁰

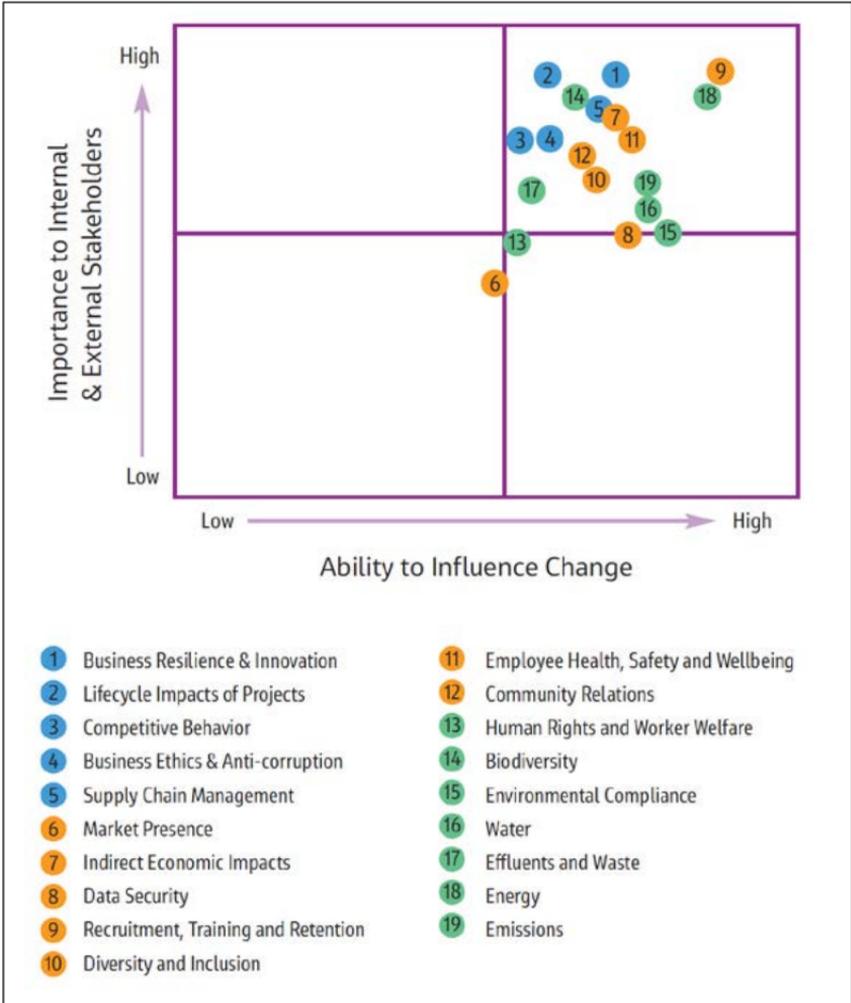


Chart from Jacobs's PlanBeyond program showing issues of importance to stakeholders (Jacobs)⁶¹

Case Study: Rockaway Revitalization and Storm Resiliency

Click below for more on this case's:

< [Introduction](#)

< [Regulators](#)

< [Managers](#)



The Rockaway boardwalk (Jacobs)

Jacobs collaborated with the NYC Department of Parks & Recreation, the NYC Economic Development Corporation, who also commissioned WXY (master planning and design), and the RBA Group (landscape architecture) to hold numerous meetings in order to engage community members and

incorporate their feedback during the design and construction phase. According to Jacobs, there was “an extensive community outreach process.”⁶² Some of the key contributions of community members during this process ranged from “accessible ramps to amenities to spelling out ‘ROCKAWAY’ in a different color of concrete within the boardwalk.”⁶³ There were also opportunities for community members to participate in focus groups on “coastal protection, boardwalk aesthetics, access, and recreation.”⁶⁴

Click below for more on this case’s:

Stewards



Safety

Similar to other firms, Jacobs fuses safety with health and environment: “At Jacobs, we believe the well-being of our people is fundamental to

our success. Our passion for safety and our courage to care for one another and our environment inspires mutual respect.”⁶⁵ The firm’s Health, Safety, and Environment program, BeyondZero, strives to maintain a “culture of caring” both at its offices and worksites, and for the environment at large. Jacobs also notes as a part of its BeyondZero description that in FY 2019 the firm continued to “demonstrate safety excellence with another year of zero employee fatalities at work.”⁶⁶ In contrast, the Jacobs and Tennessee Valley Authority (TVA) partnership was included in the National Council for Occupational Safety and Health’s report, *Dirty Dozen 2020*, which states: “forty-one workers dead, four hundred are sick after bungled cleanup of toxic coal ash.”⁶⁷

Investment

As the only non–publicly-traded and individually-owned architectural firm in this study, information regarding ZGF’s financing is not readily available. ZGF has leaned on its projects to demonstrate its commitment to the company’s mission: “We believe human performance, well-being and inspiration are influenced by the physical environment. We design buildings, plan communities, create art, and develop responsive, humane environments for all generations.”⁶⁸

ZGF, a Portland-based firm, has “green” cachet. While comparatively smaller than the other firms in this document, its international reputation has grown as the company joined “targeted trade meetings abroad” as part of a broader effort to increase Portland’s exports.

With the tagline, “We Build Green Cities,” Portland is relying on “bold strategies” to solidify exports, which “represent one of the most tangible barometers of a city’s tethers to the global economy.”⁶⁹ For ZGF, this has broadened its client base, offering the firm a real stake in international markets.

Engagement

Engagement looks different at ZGF than at the larger firms discussed here, and is mostly considered in relation to project management and input from the general public. For example, ZGF’s Portland Transit Mall Revitalization, considered the city’s largest public works project, received praise from outside observers for its emphasis on community and stakeholder participation.⁷⁰ All of ZGF’s language on public, community, and stakeholder relations is project-tied:

Community and stakeholder participation was key to the redevelopment, as was outreach to downtown retailers.—TriMet, Portland Transit Mall Revitalization⁷¹

Public feedback reinforced that the original materials were still important in unifying downtown and that the Mall should be returned to its original beauty while carefully integrating an additional layer of new infrastructure and furnishings.⁷²

Case Study: St. Elizabeths West Campus

Click below for more on this case's:

- < [Introduction](#)
- < [Regulators](#)
- < [Managers](#)



ZGF's proposed design for the St. Elizabeths West Campus (ZGF)

As a National Historic Landmark since the 1990s, St. Elizabeths West Campus has highlighted historic tensions latent in preservation projects, such as: preservation for whom? Like other major developments, this project creates opportunities for commercial speculation, potentially driving out local residents, and brings opportunities for employment, with unclear beneficiaries.

Given its Landmark status, the project has involved various agencies and organizations. “In connection with its redevelopment of the St. Elizabeths Campus, GSA has been consulting with various stakeholder agencies and organizations pursuant to Sections 106 and 110(f) of the National Historic Preservation Act (NHPA) since 2005.” GSA has been required to “minimize harm” to historic structures and to outline the impact.⁷³

Click below for more on this case’s:

Stewards



Advisory Council for Historic Preservation	American Society of Landscape Architects
Anacostia Historical Society	Area Neighborhood Commissions 8A, 8B, 8C, 8D, and 8E
Brookings Institute	Committee of 100 on the Federal City
Cultural Landscape Foundation	DC Preservation League
Department of Homeland Security	District of Columbia Department of Transportation
District of Columbia Office of Planning	District of Columbia State Historic Preservation Office
Federal Highway Administration	Friends of St. Elizabeths
Medical & Professional Society of St. Elizabeths Hospital	National Association for Olmstead Parks
National Capital Planning Commission	National Coalition to Save Our Mall
National Historic Landmarks Stewards Association	National Museum of Civil War Medicine
National Park Service	National Trust for Historic Preservation
Office of Council member Marion Barry	Representative Eleanor Holmes Norton
St. Elizabeths Hospital	U.S. Coast Guard
U.S. Commission of Fine Arts	

A list of the agencies and organizations consulted under Section 106 of National Historic Preservation Act (National Capital Planning Commission)⁷⁴

Safety

One of ZGF's main project categories is healthcare, ranging from university hospitals to private clinics, and from interior remodels to large, infrastructural redesigns. The language of safety and care is ingrained in the publicity for these types of projects, using

phrases like “welcoming and healing environment,” “warmth and comfort,” “patient-centered,” and “peaceful and supportive.”⁷⁵ While it is the smallest of the five firms discussed here, ZGF’s scope of comprehensive services is indicative of how the A&E System is always working at multiple scales. ZGF’s project management services link architectural renovations typical of a smaller firm to the increasingly professionalized, and globalized, realm of Corporate Social Responsibility.

The A&E System engages with stakeholders through various channels. The seemingly straightforward category of investment, where firms either opt in or out through the mechanisms of the stock market and private funders, is complicated by the trend of acquisitions and joint ventures between firms, as well as by the consulting role of boards of directors,

and shifting governmental priorities. The A&E System tends to couple amorphous notions of “engagement” with “community” when firms turn outward to their various publics. While public funding for A&E projects is increasingly awarded to large, publicly-traded firms, genuinely public feedback for such projects seems to nevertheless take a back seat. Finally, safety within the A&E System is typically couched in terms of health and environment, sometimes referred to as HSE on company websites. But often unmentioned are risks encountered by workers on the job site. Research and advocacy groups such as Who Builds Your Architecture? reporting on starchitect-designed projects with frightening worker mortality rates show that the A&E System poses real concerns.⁷⁶ According to the U.S. Department of Labor’s Office of Workers’ Compensation Programs, 6 percent of all

overseas government-contracted casualties from 2001 to 2018 occurred on the job sites of three of these firms or their subsidiaries: AECOM, Fluor, and Jacobs.⁷⁷

While the power of each stakeholder varies across the A&E System, what is consistent across these firms is that those people who stand to impact the A&E System the most and those who are most consequently affected by it are rarely the same.

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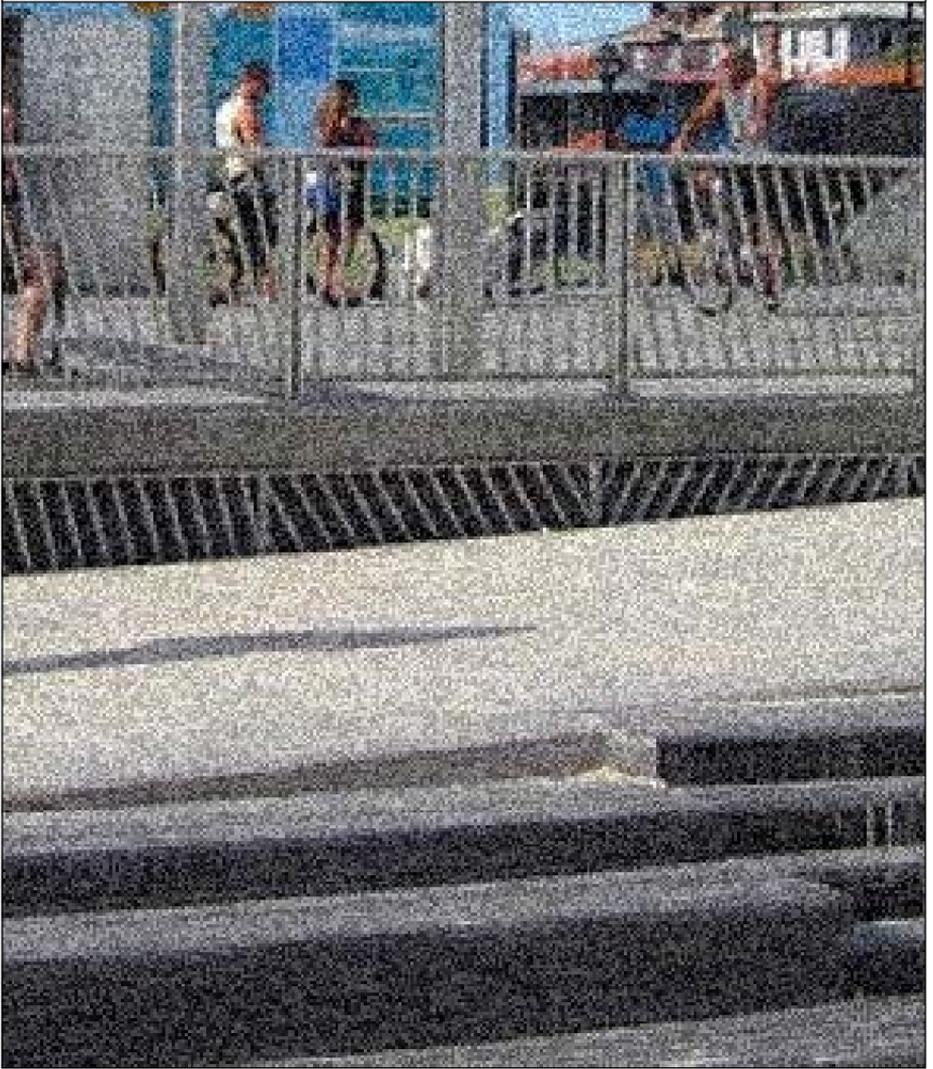
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STEWARDS



Jacobs's Rockaway Boardwalk Redevelopment and Storm Resiliency Project (Jacobs)

Stewards

What is cared for by the A&E System, and by whom within it?

A large part of the A&E System's near-term expected growth is projected to come from “government initiatives to renovate the country's depleted infrastructure”; alongside “public and private sector investments in residential, commercial, healthcare and educational infrastructure construction projects.”¹ The COVID-19 pandemic has brought this trend into focus—new contracts will not just cover individual building projects to meet present needs, but will likely reflect a strengthening corporate sense that investing in the future means investing in infrastructure.

Public- and private-sector professionals have long understood the material reality of climate change, and the A&E System has

been formed with some semblance of this understanding in mind. Not only are LEED certifications or their equivalent the new standard for all works built, but A&E firms also tend to pride themselves on prioritizing environmental compliance and pledge sustainability as a corporate value.² This environmental consideration often surpasses abiding by air and water quality laws and following best worksite practices. Stewardship, as deployed by the A&E sector and as described in this document, rhetorically extends care for the environment to care for society.

Since roughly 2000, many A&E firms have made sustainability a central part of their corporate missions. This applies to the services they provide to clients as well as to their own workspaces. Looking beyond their procurement data and into their rhetoric shows that A&E firms consider themselves experts in linking environmental resilience with corporate

resilience, championing environmental stewardship as a cost-saving maneuver. Publicity for such maneuvers is often environmentally framed, regardless of their scale or difficulty.³ Once-common images of data clouds or connectivity represented by blue electrons with hands shaking in the foreground have been replaced by dew on morning leaves, hands holding earth, and pools of clear water.

The language used across the A&E System to describe sustainability is often opaque or vague, sometimes with no clearly explained relationship to environmental impact. Completed projects provide a better picture of how A&E firms value environmental work. Yet widely publicized building projects, like carbon capture plants, seawall reinforcement, or green roof solar farms, are just one part of the system's work. As it professes to care for itself, its clients, and the communities in which it works, the A&E System expresses its contradictions. The

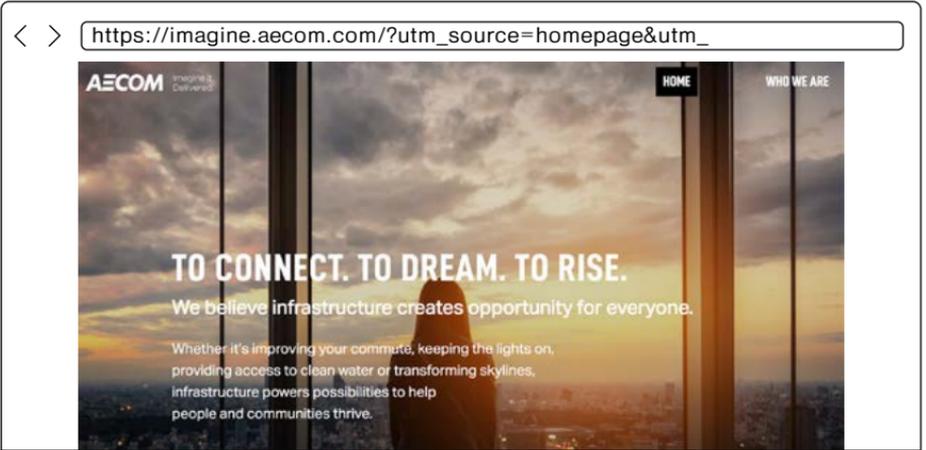
sector delivers carbon neutral (as opposed to carbon negative) worksites to build natural gas refineries, and cleans the Gulf Coast after oil rigs it engineered explode. A&E services design solar panel farms and manage radioactive waste disposal. In its stewardship of the environment, what the A&E System most effectively and consistently takes care of is itself.

AECOM

AECOM has fine-tuned its brand identity around environmental work. Over the last twenty years, AECOM shifted from framing environmental programs as a way of meeting the needs of clients to fashioning itself as a caretaker. Changes in the firm's website from 2002 to 2020 demonstrate these different approaches.⁴



"Markets Served" by AECOM in 2002 (AECOM via Internet Archive)⁵



AECOM's "Imagine It. Dream It" campaign (AECOM)⁶

Services related to sustainability and climate were recently organized through AECOM's

Environmental Services department, which includes:

- Environmental/Social Impact Assessment and Permitting
- EHS Management Consulting and Compliance
- Management Information Systems—EHS, Sustainability, Quality
- Air Quality Consulting and Engineering
- Water, Waste, and Natural Resources Management
- Engineering, Procurement, Construction/Management (EPC, EPCM)
- Climate Adaptation and Sustainability
- Remediation, Restoration, and Redevelopment⁷

AECOM's recent projects reflect stewardship as an underlying value: environment and

sustainability are often discussed together with more general claims of project success.

Case Study: U.S. Army Pacific Mission Command Facility

Click below for more on this case's:

- < Introduction
- < Regulators
- < Managers
- < Stakeholders



AECOM's proposed design for the Mission Command Facility (AECOM)

This project responds to “environmental, cultural, and historical considerations” and delivers “advanced structural, mechanical, security, and communications components, as well as site improvements, landscape design, and infrastructure. Sustainable features designed to achieve LEED certification reduce energy use by 21 percent and water use by 40 percent.”⁸ Although the website does not elaborate on specifically how this was done, Michael Brennan, design principal and senior vice president at AECOM, outlined sustainable elements incorporated into the design, some of which include “highly efficient mechanical, electrical, and plumbing systems ; low-flow fixtures; and daylighting.”⁹

Further bolstering claims of environmentalism and the firm’s role as a community steward, AECOM frequently sponsors environmentally

minded events. In 2019 it sponsored the National Association for Environmental Management's (NAEM) Sustainability Impact conference and the accompanying report.¹⁰ NAEM describes its mission in the following terms: "NAEM empowers corporate leaders to advance environmental stewardship, create safe and healthy workplaces and promote global sustainability."¹¹

At the conference, participants reported that climate change mitigation had risen to the top of the list of areas for future goal-setting efforts.¹² As a sponsor of the event and report, AECOM presented itself as a leader in encouraging corporate responsibility vis-à-vis, climate change, as well as a role model in setting and framing sustainability goals.



Page from the National Association for Environmental Management's Sustainability Report (AECOM)¹³

AECOM's public-facing language emphasizes sustainability and an environmental focus. This emphasis contrasts with the company's regular work on oil, mining, and other carbon-intensive projects. Websites for firms embedded in the A&E System often feature a proliferation of services and subcategories, markets and submarkets. It is not uncommon for projects to disappear under the radar. The third installment of AECOM's *Future*

of *Infrastructure* report, released in May of 2020 and titled “Creating Opportunity for Everyone,” is filled with commitments to carbon neutrality and fossil fuel reduction, while commissions to construct mines and power plants continue seemingly unabated in the background.¹⁴

FLUOR

Fluor communicates the company’s value of stewardship through corporate initiatives. The company’s media fact sheet lists various awards and accolades, such as being included in *Corporate Responsibility Officer Magazine*’s nationwide “100 Best Corporate Citizens” list.¹⁵

< > <https://www.fluor.com/SiteCollectionDocuments/fluor-corporatepro->



Fluor and its volunteers support environmental initiatives.

Fluor fulfills our commitment to responsible stewardship of the environment by investing in programs that preserve and/or enhance natural resources and habitats.

Fluor's "Environmental Stewardship" (Fluor)¹⁶

Fluor has leveraged this identity, claiming that “in an increasingly competitive global market, Fluor’s clients are searching for economical solutions to environmental liabilities.”¹⁷ In addition to demonstrating changes in styles and developments in web technology, Fluor’s home page makes this rhetorical shift evident. While Fluor once considered sustainability a corporate practice, it has now become a marketable service. Earlier versions of Fluor’s website included “Health, Safety, and Environment” as a sidebar

item, and later added a sustainability report. Now, “Sustainability” is featured in the main menu alongside “Services” and “Projects.”¹⁸



Fluor's home page in 1996 (Fluor via Internet Archive)¹⁹



Fluor's home page in 2007 (Fluor via Internet Archive)²⁰

< > <https://www.fluor.com/SiteCollectionDocuments/2018-fluor-sustain->



Page from Fluor's 2018 Sustainability Report (Fluor)²¹

< > <https://www.fluor.com/SiteCollectionDocuments/2018-fluor-sustain->

HEALTH, SAFETY & ENVIRONMENTAL

Acting As A Responsible Global Citizen

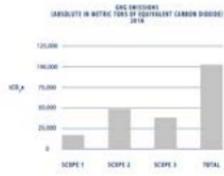
Environmental stewardship also drives our ongoing efforts and initiatives. Fluor works to ensure we are meeting environmental laws and regulations everywhere we work and that we are operating in a responsible manner on behalf of our people, our company and our clients.

GREENHOUSE GAS EMISSIONS

Fluor follows the Greenhouse Gas Emissions (GHG) Protocol standards for Inventory user which Fluor maintains operational control and updates emission factors periodically. The basic unit of measure used throughout the GHG inventory is metric tons of equivalent carbon dioxide (tCO₂e). Emission sources in Fluor's GHG inventory include:

reduce its emissions in general. Fluor is not governed by a requirement to measure its carbon footprint. However, Fluor established its global carbon footprint in 2006 for offices, vehicle fleets at those offices and air travel. The boundary to include client sites and fabrication yards. Measure and recertifies the carbon

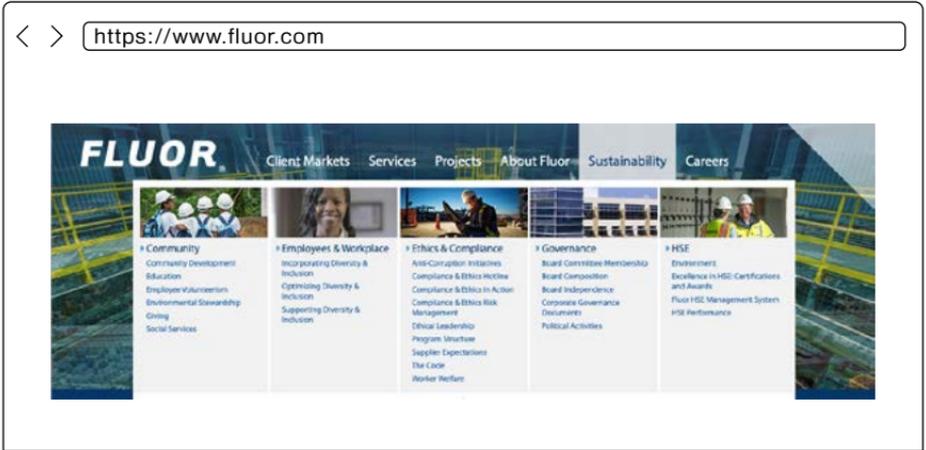
GHG emissions and Scope 2 indirect GHG emissions are emitted due to consumption of purchased electricity, heat or steam. Fluor started collecting Scope 1 emissions in 2018. The Fluor including Scope 1 emission chart will be shown for historical comparison when three years of data are available. Scope 3 emissions are not included since they include stake emissions



*Scope 1 - Direct GHG emissions
 Scope 2 - Indirect GHG emissions from consumption of purchased electricity, heat or steam
 Scope 3 - Other indirect GHG emissions, such as travel

Photo courtesy of Marathon Petroleum Corporation

Page from Fluor's 2018 Sustainability Report (Fluor)²²



Fluor's "Sustainability" menu (Fluor)²³

Fluor has self-described “A+” compliance with environmental laws and stellar emissions records. This is in part because Fluor’s carbon emissions are calculated as beginning in 2006, and its claims do not include the ultimate footprint of the firm’s projects, which the firm considers outside the scope of its work. By this calculus, Fluor’s role in the construction of a power plant or a bauxite mine can be net zero, regardless of what that facility goes on to emit.²⁴

Additionally, sustainability often appears in Fluor's literature in the context of health and safety. Environmental issues first appeared as a part of the company's website under Health, Safety, and Environmental, and these concepts appear to have been linked since. An emphasis on employee practices also applies to Fluor's subcontractors. For example, Fluor is responsible for subcontractor worksites, but not responsible for the work of the subcontractors.

Case Study: Temporary Housing Solutions in response to Hurricanes Katrina and Rita

Click below for more on this case's:

< Introduction

< Regulators

< Managers

< Stakeholders



A sticker in the window of a temporary housing unit reads “NOT TO BE USED FOR HOUSING” (Nick Shapiro)

On the web page dedicated to Fluor’s responses to Hurricanes Katrina and Rita, the section “Fluor’s Solution” highlights the project’s “exemplary safety record,” in spite of the unsafe conditions of individuals eventually placed in the temporary housing units it produced.²⁵

Additionally, the project received Fluor’s Hugh Coble Project Excellence Award in 2006. The award is “based on outstanding performance in several areas; including safety, value creation, and client and community

relations.”²⁶ It then passed on the award to the subcontractors, Glenn G. Shaheen & Associates, Inc.

HDR

HDR uses the language of personal responsibility throughout its corporate materials. This is reflected in the firm’s charitable foundation, its model of employee ownership, and in its public-facing language.

HDR explains: “Our sustainability program continues pushing boundaries by reducing our impacts, acting as change agents and providing value to our clients through sustainable solutions.”²⁷

< > https://web.archive.org/web/20010627030318/http://www.hdrinc.com/



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HDR's home page in 2001 (HDR via Internet Archive)²⁸

< > https://web.archive.org/web/20070226205006/http://www.hdrinc.com/16/default.aspx

ONE COMPANY *Many Solutions*

CAREERS | CLIENTS | COMMUNITY | EMPLOYEES | MEDIA | PARTNERS
About HDR | Locations | News & Events | Projects | Resources | Services | Sustainability
Home > Sustainability

Sustainability

- Expertise
- Buildings
- Climate Change
- Community
- Econ. & Env. Modeling
- Energy Management
- Mobility
- Site Development
- Waste Management
- Water Resources
- Fundamentals
- Sustainable Business
- Partnerships
- Publications

Sustainability

Sustainability is the act of balancing the environmental, social and economic needs of the built and natural environments for present and future generations.

We offer our clients the best possible economic, social and environmental value by delivering integrated sustainable solutions.

Balanced sustainable solutions result in sound choices and decisions that:

- are resource sensitive
- provide private and public sector opportunities for economic growth and development
- create quality and diverse places where people can live, grow and flourish
- are socially equitable
- consider the broad context of each decision

HDR's Sustainability Initiative includes an internal Sustainable Business

HDR's website in 2007 (HDR via Internet Archive)²⁹

“Sustainable Design” first appeared as a category on HDR’s website in 2001, alongside “Environmental and Resource Management.” By 2007, “Sustainability” was presented as a stand-alone header, alongside “Projects” and “Services,” as a seemingly more comprehensive practice. A major part of its work is in the health care sector, and HDR links the ethos of sustainability to the firm’s hospital construction projects.

Case Study: Walter Reed National Military Medical Center

Click below for more on this case’s:

< [Introduction](#)

< [Regulators](#)

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HDR's proposed renovations at the Walter Reed National Military Medical Center (HDR)³⁰

On a page from HDR's website titled "How HDR Does XL Hospitals: Green is Good, Resiliency is Better," the company explains: "We've expanded our definition of sustainable design to incorporate all aspects of resiliency. That means designing buildings and communities that nurture people and keep them safe."³¹ Here, HDR's expertise managing large healthcare projects is merged with sustainability language such as "connecting people to nature through views and green spaces" and "reducing loads on emergency resources with energy- and water-efficient systems."³²

A 2019 report from Global Data notes that an increasing global demand for energy, in particular from the industrial sector—including mining, manufacturing, agriculture, and construction—could bolster HDR and other top engineering companies’ products and related services geared toward the creation of energy infrastructure.³³ These types of potentially high-carbon projects complicate the rhetoric of “sustainability” and “resilience” that pervades HDR’s marketing. This complication has additional implications for HDR as a non-publicly-traded company, which does not require the transparency that comes with having to report to shareholders.

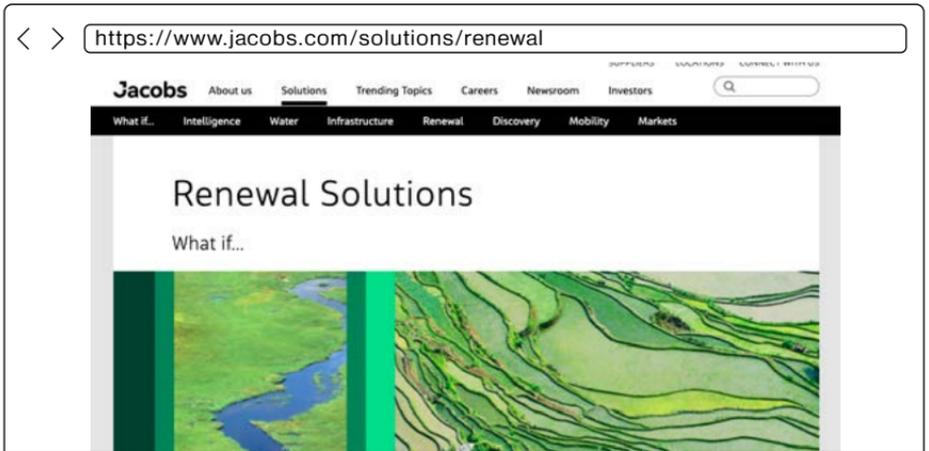
JACOBS



Jacobs's home page in 2008 (Jacobs via Internet Archive)³⁴

Similarly to the other two publicly-traded companies studied here, AECOM and Fluor, Jacobs introduced a “Sustainability” section on its home page around 2008.³⁵ The current Jacobs website frames the company’s work through various “Solutions,” rather than services, which is the term more commonly used (see AECOM and Fluor). The “Solution” that most directly reflects Jacobs’s sense of stewardship is what the company calls “Renewal,” claiming that, “At Jacobs, we think differently about the future because today’s

challenges of urbanization, resource scarcity, climate change, digital proliferation, and security demand innovative approaches to deliver a more connected, sustainable world.”³⁶ Such statements sweep broadly across markets and clients, linking sustainability and resilience to commerce.



The “Solutions” page on the Jacobs website (Jacobs)³⁷

Additionally, like Fluor, Jacobs employs its sustainability expertise as a marketable service—PlanBeyond is Jacobs’s sustainability consulting service which is “about planning

beyond today for a sustainable future for everyone.” For Jacobs, “this means social and economic progress while protecting our environment and improving resilience. It is also about being the employer of choice for our people and being the go-to solutions provider for a more connected, sustainable world.”³⁸



A page from Jacobs's "Sustainability Consulting Services" capability statement (Jacobs)³⁹

Jacobs CEO Steve Demetriou highlights the company's work in relation to climate change—induced disasters, where “wildfires, destructive hurricanes, earthquakes, and catastrophic

floods” generate work for the company.⁴⁰ Jacobs’s “Solutions,” such as “advanced flood modelling and control technologies,” “innovative natural infrastructure approaches,” and “comprehensive recovery operations” reflect an emphasis on resilience, as well as a sense of opportunity.

Case Study: Rockaway Revitalization and Storm Resiliency

Click below for more on this case’s:

< [Introduction](#)

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The Rockaway boardwalk (Jacobs)

Jacobs's acquisition of CH2M Hill was, at least partially, an expansion aimed at increasing the company's capacity to undertake projects focused on resilience. The investor report finalizing the acquisition states that, "the combined company will have among the broadest and deepest environmental technical and project delivery capabilities in the industry. In addition, CH2M's environmental expertise complements Jacobs' existing business with the federal government, positioning the combined company with leading capabilities for government clients that also are transferable to private-sector clients, creating opportunities for substantial upside potential for the company."⁴¹

As the acquisition took place while CH2M had open federal contracts, Jacobs became the parent recipient of CH2M's federal contracts. Based on publicly available information, the IDV FEMA contract, through which CH2M

provided Hurricane Sandy recovery, became a joint venture. “This is a high-profile, important, fast-track project that is an integral piece of the post-Sandy recovery,” stated Jonathan Goldstick, CH2M project manager. “Leveraging our global waterfront experience, we look forward to providing the local community and its visitors an efficient, attractive, sustainable boardwalk that supports their waterfront needs for years to come.”⁴²

The same year that Jacobs/CH2M completed the Rockaway Beach project, it was also working with Shell on an oil pipeline resilience project “to improve infrastructure integrity and environmental health at the same time.”⁴³ The pipeline project uses the same type of language as the Rockaway storm redevelopment: “In coastal Louisiana, the ecosystem is dramatically different than it was one hundred

years ago. Coastal land loss is impacting communities and the infrastructure that supports them, including critical energy assets such as pipelines. Jacobs' and Shell's natural solution not only supports these pipelines, but also serves as a model for balancing coastal infrastructure and an evolving natural environment today and for generations to come."⁴⁴

ZGF

ZGF describes itself as having “an ethos of collaboration, design excellence, stewardship of our natural and built environment, and exceptional client service.”⁴⁵ The firm's image as a pro-environment company goes hand in hand with many of its clients' sustainability goals. ZGF's work on “Urban Ecodistricts” expands the concept of sustainability and stewardship

from one building or project to an entire city: “Urban design will be critical to make densely occupied yet carbon positive places. The next generation of urban design supports living harmoniously with nature, provides economic security, and connects people together,” according to Portland principal Charles Kelly. “The city itself is a tool to combat climate change and societal inequities. Redefining what ‘urban’ can be is an opportunity to address these major issues.”⁴⁶

A more holistic understanding of ZGF’s ethos of stewardship is challenged by the lack of available material outside of the firm’s own writing and press coverage. ZGF’s relatively small size has largely kept it out of the public eye, and its private corporate structure limits any public record of its finances that might otherwise complement or contrast with its sustainability discourse. In “Our Mandate

to Address the Climate Crisis,” ZGF writes: “As a firm deeply committed to sustainability, we consider it our duty to push ourselves, our industry and our clients toward more meaningful and sustainable solutions. As such, we are making a commitment that every ZGF project adhere to the following principles: Consider and address both operational and embodied carbon; reduce impact of the worst materials; and get serious about carbon sequestration.”⁴⁷

A different way to look at ZGF’s relationship to climate is through the statements of its clients. For example, in January 2020 ZGF tweeted support of Microsoft for its updated climate commitment.⁴⁸



A ZGF tweet from January 16, 2020 (Twitter)

Like ZGF's own company mandate, this expression of solidarity does not necessarily come along with any additional information or metrics for accountability. The inverse is also true, as clients who work with ZGF are able to use the affiliation to claim environmental stewardship.

Case Study: St. Elizabeths West Campus

Click below for more on this case's:

- < Introduction
- < Regulators
- < Managers
- < Stakeholders



ZGF's proposed design for the St. Elizabeths West Campus (ZGF)

The GSA sustainability goals for the St. Elizabeths West Campus were achieving LEED 2009 Gold certification, reducing vehicular traffic, reducing the new construction footprint by adaptive reuse, using recycled building material, employing an onsite utility

cogeneration plant, reducing onsite storm water runoff by using multiple infiltration pits and a staggered release system, relocating native trees located in construction areas, reducing heat island effect by using underground parking, and including green roofs.⁴⁹ Through building a new headquarters, the DHS can dramatically improve its federal sustainability scorecard.⁵⁰

When tracing public funding for A&E services through databases like USAspending, what can be hidden behind the contract amounts and codes is the built environment itself—the actual projects to which the numbers refer. In this sense, stewardship of this environment is left to the firms that make up the A&E System, which remains, at its core, a business.

Judging from the public profiles of these five firms, much has changed over the past twenty years. With the general recognition of climate change and the emergence of sustainability as a corporate value, stewardship has taken on a more significant role. From sustainability as a hidden menu item to the basis of an entire brand identity, stewards—with all of their contradictions—are key actors in the A&E System.

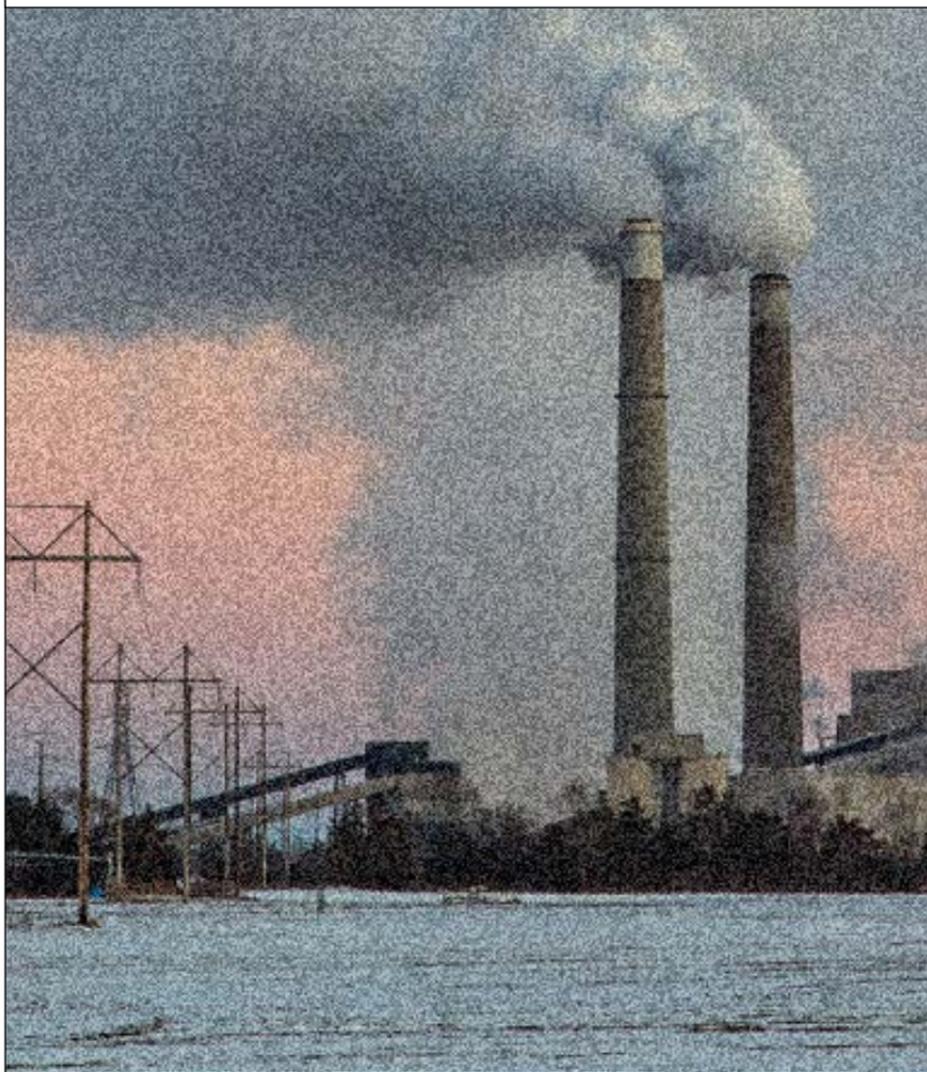
Notes

- 1 "Growth is expected due to the government initiatives to renovate the country's depleted infrastructure; and public and private sector investments in residential, commercial, healthcare and educational infrastructure construction projects.... The US construction industry is expected to grow at a Compound Annual Growth Rate (CAGR) of 4.52 percent during 2018–2022 (forecast period), to reach \$1.8 trillion in 2022.... The infrastructure construction market is anticipated to grow at a forecast-period CAGR of 4.50 percent to reach \$199.4 billion in 2022.... The energy and utilities construction market is expected to grow at a CAGR of 2.44 percent during the forecast-period to reach \$241.8 billion in 2022." *HDR Inc: Strategic SWOT Analysis Review* (London: GlobalData, March 2019).
- 2 In 2018, 2019, and 2020 AECOM was ranked #1 on *Engineering News-Record's* annual list of Top 200 Environmental Firms. This ranking is based on the percent of gross revenue reported from environmental services in the prior year. Those same years, Jacobs Engineering Group ranked #2 in *Engineering News-Record's* Top 200 Environmental Firms. "ENR 2020 Top 200 Environmental Firms," *Engineering News-Record*, <https://www.enr.com/toplists/2020-Top-200-Environmental-Firms-Preview>.
- 3 For example, in Fluor's 2018 sustainability report they remark: "Fluor's ongoing initiative to promote double-sided printing saved approximately 4 tons (43 tonnes) of paper in 2018." Fluor, *2018 Sustainability Report: Transforming the World*, 15, <https://www.fluor.com/SiteCollectionDocuments/2018-fluor-sustainability-report.pdf>.
- 4 Over the course of two decades, AECOM has shifted its marketing to reflect notions of corporate personhood, suggesting a value of reciprocal care or compassion. "Markets Served," AECOM, August 2, 2002, https://web.archive.org/web/20020802232636/http://www.aecom.com/markets_served/ (accessed October 1, 2020 via Internet Archive); "AECOM. Imagine It. Delivered," AECOM, accessed October 1, 2020, https://imagine.aecom.com/?utm_source=homepage&utm_medium=blog_article&utm_campaign=brand_2019&_ga=2.71453011.1981003746.1571069630-343836669.1553020079#home.
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- 10 National Association for Environmental, Health, Safety, and Sustainability Management (NAEM), *Setting the Next Generation of Sustainability Goals*, October 2019, https://www.aecom.com/wp-content/uploads/2019/10/NAEM_Setting-the-Next-Generation-of-Sustainability-Goals_10_11_19_Updated.pdf.
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- 12 NAEM, *Setting the Next Generation of Sustainability Goals*, 25.
- 13 NAEM, *Setting the Next Generation of Sustainability Goals*.
- 14 "The Future of Infrastructure," AECOM, accessed October 1, 2020, <https://infrastructure.aecom.com/>.
- 15 Fluor, "Corporate Profile," May 26, 2020, <https://www.fluor.com/SiteCollectionDocuments/fluor-corporateprofile.pdf>.
- 16 "Environmental Stewardship," Fluor, accessed October 7, 2020, <https://www.fluor.com/sustainability/community/environment-stewardship>.

- 17 "Environmental Remediation," Fluor, accessed October 7, 2020, <https://www.fluor.com/client-markets/government/nuclear-civil/environ-remediation>.
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- 37 "Renewal Solutions," Jacobs.
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GLOSSARY



A coal-fired power plant near Becker, Minnesota (Tony Webster / Wikimedia Commons)

So, what does architecture look like when studied through public-private partnerships? It looks like part of a system.

What does this way of thinking reveal about the professional, social, and economic complexities of the interconnected crises of mutual care, racial oppression, and climate? It reveals that—because of, not in spite of, these complexities—the built environment and its agents wield enormous power in today’s world.

And what part do architects truly play? Like the architecture the system produces, the role of architects in the A&E System might not be what students of architecture have been taught to imagine; but that doesn’t mean it’s not worth knowing, and worth shaping.

Admittedly, this user’s guide to the A&E System is incomplete—and not only because systems hide, but because they’re always growing and adjusting in response to the

worlds in and around them. The first step toward systemic change is recognizing the system.

The concepts below and linked throughout the document extend that effort, inviting further conversation, definition, and intervention.

Term	Definition	Citation
Acquisition (Corporate)	"An acquisition is when one company purchases most or all of another company's shares to gain control of that company. Purchasing more than 50 percent of a target firm's stock and other assets allows the acquirer to make decisions about the newly acquired assets without the approval of the company's shareholders."	Will Benton, "Acquisition," Investopedia, last modified June 14, 2020, https://www.investopedia.com/terms/a/acquisition.asp#what-is-an-acquisition .
Acquisition (Government)	"Acquisition means the acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract."	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 2.1-1, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
AEC	AEC refers to the Architecture, Engineering, and Construction Industry, as opposed to A&E which refers only to Architectural and Engineering Services.	

Term	Definition	Citation
Agency	“Any federal department, commission, or other US government entity. Agencies can have multiple sub-agencies. For example, the National Park Service is a sub-agency of the U.S. Department of the Interior.”	“Agency,” Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov .
Architectural Services	The NAICS code for Architectural Services is 541310, which is defined as an industry comprising “establishments primarily engaged in planning and designing residential, institutional, leisure, commercial, and industrial buildings and structures by applying knowledge of design, construction procedures, zoning regulations, building codes, and building materials.”	<i>North American Industry Classification System</i> (Washington DC: Executive Office of the President, Office of Management and Budget, 2017), 465.
Award	An award, when used in the context of federal procurement, is “money the federal government has promised to pay a recipient. Funding may be awarded to a company, organization, government entity (i.e., state, local, tribal, federal, or foreign), or individual. It may be obligated (promised) in the form of a contract, grant, loan, insurance, direct payment, etc.”	“Award,” Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov .
Award ID	On USAspending, the award ID is “a unique identification number for each individual award. An award may be a contract, grant, loan, insurance, or direct payment.”	“Award ID,” Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov .
Awarding Agency	“The Awarding Agency is the agency that issues and administers the award. This agency usually pays for the funding out of its own budget. In some cases, the award is financed by another agency, called the Funding Agency.”	“Awarding Agency,” Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov .
The Brooks Act (1972)	The Brooks Act established the procurement process for architectural and engineering services for federal agencies. In 2002 it became part of U.S. Code Chapter 11 “Selection of Architects and Engineers.” It is also implemented in the Federal Acquisition Regulation (FAR) subpart 36.6.	The Brooks Act of 1972, 40 U.S.C. § 1101-1104 (2002), https://www.law.cornell.edu/uscode/text/40/subtitle-I/chapter-11 .
Building Resilient Infrastructure and Communities (BRIC) program	The Building Resilient Infrastructure and Communities (BRIC) program was established with the 2018 Disaster Recovery Reform Act (DRRA). It is a grant program that supersedes “the existing Pre-Disaster Mitigation grant program and would promote a national culture of preparedness through encouraging investments to protect communities and infrastructure and strengthening national mitigation capabilities to foster resilience.”	“Hazard Mitigation Assistance: Building Resilient Infrastructure and Communities,” <i>Federal Register</i> 85, no. 70 (April 10, 2020), 20291, https://www.govinfo.gov/content/pkg/FR-2020-04-10/pdf/2020-07609.pdf .

Term	Definition	Citation
Business Roundtable (BRT)	"An association of chief executive officers of America's leading companies working to promote a thriving U.S. economy and expanded opportunity for all Americans through sound public policy."	"About Us," Business Roundtable, accessed October 5, 2020, https://www.businessroundtable.org/about-us
Carbon Footprint	Carbon Footprint typically refers to the greenhouse gasses emitted throughout the production and lifecycle of an individual, service, or product. In relation to the built environment, definitions typically include two factors: operational carbon emissions and the embodied carbon of a building.	Diana Budds, "How do Buildings Contribute to Climate Change?" <i>Curbed</i> , September 19, 2019, https://www.curbed.com/2019/9/19/20874234/buildings-carbon-emissions-climate-change .
Carbon Negative	"Becoming carbon negative requires a company, sector or country to remove more CO ₂ from the atmosphere than it emits."	Sara Budinis, "Going carbon negative: What are the technology options?" IEA, January 31, 2020, https://www.iea.org/commentaries/going-carbon-negative-what-are-the-technology-options .
Carbon Neutral	"Carbon neutrality, or 'net zero,' means that any CO ₂ released into the atmosphere from human activity is balanced by an equivalent amount being removed."	Sara Budinis, "Going carbon negative: What are the technology options?" IEA, January 31, 2020, https://www.iea.org/commentaries/going-carbon-negative-what-are-the-technology-options .
Catastrophic Incident	The term "catastrophic incident" means any natural disaster, act of terrorism, or other human-made disaster that results in extraordinary levels of casualties or damage or disruption severely affecting the population (including mass evacuations), infrastructure, environment, economy, national morale, or government functions in an area.	Post-Katrina Emergency Management Reform Act of 2006, S. 3721, 109th Cong. (2006), https://www.congress.gov/bill/109th-congress/senate-bill/3721 .
Child Contract / Child Recipient / Child Award	The term "child" is used in federal procurement to designate a hierarchy in contracting. It can refer to any subsidiary contract, recipient, or award.	

Term	Definition	Citation
Construction	The NAICS code for Construction covers the following activities: erecting buildings and other structures (including additions); heavy construction other than buildings; and alterations, reconstruction, installation, and maintenance and repairs.	<i>North American Industry Classification System</i> (Washington DC: Executive Office of the President, Office of Management and Budget, 2017), 123.
Cooperative Agreement	“An executive agency shall use a cooperative agreement as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when—(1) the principal purpose of the relationship is to transfer a thing of value to the State, local government, or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; and (2) substantial involvement is expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement.”	31 U.S.C. § 6305 (1982), https://www.law.cornell.edu/uscode/text/31/6305 .
Corporate Social Responsibility	“A management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. CSR is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives (‘Triple-Bottom-Line Approach’), while at the same time addressing the expectations of shareholders and stakeholders.”	“What is CSR?” United Nations Industrial Development Organization, accessed October 5, 2020, https://www.unido.org/our-focus/advancing-economic-competitiveness/competitive-trade-capacities-and-corporate-responsibility/corporate-social-responsibility-market-integration/what-csr .
Cost Contract	“A cost contract is a cost-reimbursement contract in which the contractor receives no fee. A cost contract may be appropriate for research and development work, particularly with nonprofit educational institutions or other nonprofit organizations.”	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 16.3-1, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .

Term	Definition	Citation
Cost-Plus-Award-Fee Contract	“A cost-plus-award-fee contract is a cost-reimbursement contract that provides for a fee consisting of (a) a base amount (which may be zero) fixed at inception of the contract and (b) an award amount, based upon a judgmental evaluation by the Government, sufficient to provide motivation for excellence in contract performance.”	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 16.3-1, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
Cost-Plus-Fixed-Fee Contract	“A cost-plus-fixed-fee contract is a cost-reimbursement contract that provides for payment to the contractor of a negotiated fee that is fixed at the inception of the contract. The fixed fee does not vary with actual cost, but may be adjusted as a result of changes in the work to be performed under the contract. This contract type permits contracting for efforts that might otherwise present too great a risk to contractors, but it provides the contractor only a minimum incentive to control costs.”	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 16.3-2, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
Critical Infrastructure	“Critical infrastructure includes the vast network of highways, connecting bridges and tunnels, railways, utilities and buildings necessary to maintain normalcy in daily life. Transportation, commerce, clean water and electricity all rely on these vital systems.”	“Critical Infrastructure,” Science & Technology, U.S. Department of Homeland Security, accessed October 5, 2020, https://www.dhs.gov/science-and-technology/critical-infrastructure .
The Davis–Bacon Act (1931)	This act requires contractors working on public works projects to pay the prevailing local wage for laborers and mechanics. It can be suspended during a national emergency, which occurred during Hurricane Katrina.	The Davis–Bacon Act of 1931, 40 U.S.C. 3141-3148, https://www.law.cornell.edu/uscode/text/40/subtitle-II/part-A/chapter-31/subchapter-IV .

Term	Definition	Citation
Definitive Contract	<p>“A Definitive Contract is a mutually binding legal relationship obligating the seller to provide the supplies or services (including construction) and the buyer to pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing. In addition to bilateral instruments, contracts include (but are not limited to) awards and notices of awards; job orders, or task letters, issued under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications.”</p>	<p>“Definitive Contract,” Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov.</p>
Disaster	<p>According to the United Nations, a disaster is a “serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.”</p>	<p>“Disaster,” Terminology, United Nations Office for Disaster Risk Reduction, accessed October 5, 2020, https://www.undrr.org/terminology/disaster.</p>
Disaster Resilience	<p>“The term disaster resilience refers to the ability to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.”</p>	<p><i>Government Accountability Office, Disaster Resilience Framework: Principles for Analyzing Federal Efforts to Facilitate and Promote Resilience to Natural Disasters</i>, GAO-20-100SP, October 2019, 1, https://www.gao.gov/assets/710/702215.pdf.</p>
Disaster Recovery Reform Act (2018)	<p>The Disaster Recovery Reform Act (DRRA) is a major revision of the Stafford Act which was signed into law in 2018. The DRRA includes more than fifty provisions, placing emphasis on disaster and hazard mitigation and preparedness, namely through the establishment of a National Infrastructure Fund.</p>	<p>“Disaster Recovery Reform Act of 2018,” FEMA, updated July 23, 2020, https://www.fema.gov/disasters/disaster-recovery-reform-act-2018.</p>
Disaster Response Registry	<p>The Disaster Response Registry includes contractors willing to provide debris removal, distribution of supplies, reconstruction and other disaster or emergency relief services in the event of a national disaster. These contracts are assigned by FEMA and the U.S. Army Corps of Engineers.</p>	<p>The System for Award Management, accessed July 16, 2018, https://sam.gov.</p>

Term	Definition	Citation
Data Universal Numbering System (DUNS)	The Data Universal Numbering System (DUNS) is a "unique 9-digit identification number assigned to a company or organization by Dun & Bradstreet, Inc. A DUNS is required to register in the System for Award Management (SAM). An organization must be registered in SAM (and obtain a DUNS) to do business with the federal government. There is a separate DUNS number for each business location in the Dun & Bradstreet database. The DUNS number is random, and specific digits have no significance."	"DUNS," Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov .
Emergency Management	(1) "Emergency management is the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters." (2) The term "emergency management" means the governmental function that coordinates and integrates all activities necessary to build, sustain, and improve the capability to prepare for, protect against, respond to, recover from, or mitigate against threatened or actual natural disasters, acts of terrorism, or other man-made disasters." For "financial emergency management," see "Infrastructures of Austerity," Power: Infrastructure in America, The Temple Hoyne Buell Center for the Study of American Architecture, https://power.buellcenter.columbia.edu/media/15 .	(1) "Emergency Management: Definition, Vision, Mission, Principles," Emergency Management Institute, Federal Emergency Management Agency, accessed October 5, 2020, https://training.fema.gov/hiedu/docs/emprinciples/0907_176%20em%20principles12x-18v2f%20johnson%20(w-o%20draft).pdf . (2) Post-Katrina Emergency Management Reform Act of 2006, S. 3721, 109th Cong. (2006), https://www.congress.gov/bill/109th-congress/senate-bill/3721 .
Engineering Services	The NAICS code for Architectural Services is 541330, which is defined as an industry comprising "establishments primarily engaged in applying physical laws and principles of engineering in the design, development, and utilization of machines, materials, instruments, structures, processes, and systems. The assignments undertaken by these establishments may involve any of the following activities: provision of advice, preparation of feasibility studies, preparation of preliminary and final plans and designs, provision of technical services during the construction or installation phase, inspection and evaluation of engineering projects, and related services."	<i>North American Industry Classification System</i> (Washington DC: Executive Office of the President, Office of Management and Budget, 2017), 465.
Fair Labor Standards Act (1938)	The Fair Labor Standards Act established minimum wage, overtime pay, recordkeeping, and youth employment standards affecting employees in the private sector and in federal, state, and local governments.	Fair Labor Standards Act of 1938, 29 U.S.C. § 201-219, https://www.law.cornell.edu/uscode/text/29/chapter-8 .

Term	Definition	Citation
Federal Acquisition Regulation (1984) and related legislation	<p>The Federal Acquisition Regulation (FAR) became effective in 1984 and is the "primary regulation for use by all executive agencies in their acquisition of supplies and services with appropriated funds."</p> <p>Key components:</p> <ul style="list-style-type: none"> · Competition in Contracting Act (CICA) (41 U.S.C. 253) (FAR Subpart 6.1 Full and Open Competition): Before 1984, there was a federally-mandated formal advertisement process that advertised the government's intent to buy goods and services from a contractor, and the lowest bid that fulfilled the needs of the government would win. The Competition in Contracting Act reversed this process by choosing contractors based on which ones offered the "best value." This Act also formalized the bid protest process at the Government Accountability Office (GAO), so contractors and officials had an official body where they could voice their complaints if needed. Each agency also established the position of "competition advocate" within its organization to review and challenge any procurement that limits competition. Passed as a part of the Deficit Reduction Act of 1984, it was not enacted until April 1st, 1985. · Federal Acquisition Streamlining Act (Public Law 103-355) (1994): The FASA was intended to reduce confusion and lower procurement barriers, ten years after the CICA was passed. This Act relaxed some of the stringent requirements regarding cost and pricing data that, in the view of some, "focused more on cost than outcomes." This act raised the threshold of contracts that required this oversight from the GAO from 25k to 100k. In essence, it also allowed the government to procure more products that were already available in the consumer market, rather than buying products specifically made for government use. · Engineer Federal Acquisition Regulation Supplement (UAI/EFARS) 36.601-3 (S-101) (U.S. Army Corps of Engineers) (Updated January 25, 2017): A supplement was added to the FAR's section 36 in 2017 that directly addresses the United States Army Corps of Engineers (USACE) in the form of a USACE Acquisition Instruction (UAI). The UAI establishes uniform policies and procedures to ensure that business practices are consistent throughout USACE. 	<p><i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf.</p>

Term	Definition	Citation
Federal Funding Accountability and Transparency Act (2006)	The USAspending database was mandated by the 2006 Federal Funding Accountability and Transparency Act (FFATA). "The legislation required that federal contract, grant, loan, and other financial assistance awards of more than \$25,000 be displayed on a publicly accessible and searchable website to give the American public access to information on how their tax dollars are being spent. In 2008, FFATA was amended by the Government Funding Transparency Act, which required prime recipients to report details on their first-tier sub-recipients for awards made as of October 1, 2010."	"About," USAspending, accessed October 5, 2020, https://www.usaspending.gov/ .
Federal Procurement Data System (FPDS)	The Federal Procurement Data System is the source for procurement data on USAspending. Of particular interest are the FPDS reports on disasters such as Hurricane Maria or Hurricane Sandy.	Federal Procurement Data System, accessed October 5, 2020, https://www.fpds.gov/ .
Firm-Fixed-Price Contract	"A firm-fixed-price contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. This contract type places upon the contractor maximum risk and full responsibility for all costs and resulting profit or loss. It provides maximum incentive for the contractor to control costs and perform effectively and imposes a minimum administrative burden upon the contracting parties."	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 16.2-1, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
Firm-Fixed-Price, Level-of-Effort Term Contract	"A firm-fixed-price, level-of-effort term contract is suitable for investigation or study in a specific research and development area. The product of the contract is usually a report showing the results achieved through application of the required level of effort. However, payment is based on the effort expended rather than on the results achieved."	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 16.2-5, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .

Term	Definition	Citation
Grant	<p>“An executive agency shall use a grant agreement as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when—(1) the principal purpose of the relationship is to transfer a thing of value to the State or local government or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; and (2) substantial involvement is not expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement.”</p>	<p>31 U.S.C. 6304 (1982), https://www.law.cornell.edu/uscode/text/31/6304.</p>
Hazard Mitigation	<p>“Hazard Mitigation reduces loss of life and property by minimizing the impact of disasters. This begins with state, tribal and local governments identifying natural disaster risks and vulnerabilities that are common in their area. After identifying these risks, they develop long-term strategies for protecting people and property from similar future events. Mitigation plans are key to breaking the cycle of disaster damage, reconstruction and repeated damage.”</p>	<p>“Hazard Mitigation Planning,” Emergency Management, Federal Emergency Management Agency, accessed October 5, 2020, https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning.</p>
Health, Safety, and Environment (HSE) (EHS)	<p>Health, Safety, and Environment (HSE) or Environment, Health, and Safety (EHS) is an umbrella term for a type of department or sector within companies and organizations. It is often related to quality assurance, personnel and human resources, or sustainability.</p>	<p>“Fluor’s Sustainable Commitment to Health, Safety and the Environment,” Fluor, accessed October 5, 2020, https://www.fluor.com/sustainability/health-safety-environmental; “Health, Safety and Environment,” Jacobs, accessed December 3, 2020, https://www.jacobs.com/about/safety-security-environment.</p>

Term	Definition	Citation
Indefinite Delivery / Indefinite Quantity (IDIQ) Contract	<p>An Indefinite Delivery contract is a “vehicle that has been awarded to one or more vendors to facilitate the delivery of supply and service orders.” An Indefinite Delivery / Indefinite Quantity (IDIQ) contract “provides for an indefinite quantity, within stated limits, of specific supplies or services to be furnished during a fixed period with deliveries to be scheduled by placing orders with the contractor. The contract shall require the Government to order and the contractor to furnish at least a stated minimum quantity of supplies or services and, if ordered, the contractor to furnish any additional quantities not to exceed a stated maximum.”</p> <p>Some key characteristics of IDIQ contracts are:</p> <ul style="list-style-type: none"> · “IDIQ contracts are often awarded to multiple bidders, so when the time comes for the government to issue task or delivery orders, it has the ability to select one or several companies.” · The terms of the contract offer the contracted body a fair degree of protection and certainty: this is more beneficial than other types of contracts (and their modifications). · IDIQ contracts promote “contract bundling,” in which multiple disparate contracted services are consolidated into one contract, and a phenomenon called “accretive bundling” in which large, million-plus-dollar services are added on to existing IDIQ contracts. Substantial bundling is any bundling that results in a contract or order with an estimated value of \$8 million or more. · Smaller, local companies are more-or-less ineligible for this contract type, because they do not possess the resources to bid for it. Often their only chance at participating is by offering their services as a subcontractor. 	<p>“Indefinite Delivery Contract,” Federal Procurement Data System, accessed October 5, 2020, https://www.fpd.gov/help/Indefinite_Delivery_Contract.htm; J. Catherine Kunz, “Pre-Disaster Contracting: The Use of Indefinite-Delivery/ Indefinite-Quantity Contracts,” <i>Government Contract</i> 19, no. 22 (February 27, 2006), 1, https://www.crowell.com/documents/DOCASSOCFKTYPE_ARTICLES_392.pdf.</p>
Individual Assistance, Technical Assistance Contract (IATAC)	<p>“These contracts, with a total funding ceiling of \$1.5 billion, are for comprehensive program management services as well as construction, architectural, and engineering capabilities to support housing; mass care; and disaster planning, staffing, and logistics services.” IATAC contracts consist of a base contract with individual task orders.</p>	<p>Department of Homeland Security, Office of Inspector of General, <i>Improving FEMA’s Individual Assistance, Technical Assistance Contracts</i>, OIG-11-114, September 2011, 1, https://www.hsdl.org/?abstract&did=690855.</p>

Term	Definition	Citation
Labor-Hour Contract	"A labor-hour contract is a variation of the time-and-materials contract, differing only in that materials are not supplied by the contractor."	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 16.6-2, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
LEED Certification	"LEED (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world. Available for virtually all building types, LEED provides a framework for healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership."	"What is LEED?" U.S. Green Building Council, accessed October 5, 2020, https://www.usgbc.org/help/what-leed .
Joint Venture	Joint ventures can involve any formal combination of individuals, partnerships, or corporations crafted for the strategic benefit of one or more than one of the entities.	
Major Disaster	<u>The Stafford Act</u> defines a major disaster as: "Any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) regardless of cause, any fire, flood, or explosion, in any part of the United States, which, in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this chapter to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby."	Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974, Pub. L. No. 92-288, 42 U.S.C. 5122 (2018), https://www.law.cornell.edu/uscode/text/42/5122 .
NAICS	The North American Industry Classification System (NAICS) is the federal coding standard "for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy."	"NAICS," Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov/ .
No-bid contract	A no-bid contract, or sole source contract, is an agreement that is made directly with a company or entity, bypassing a standard bidding process.	

Term	Definition	Citation
Obligation	“When awarding funding, the U.S. government enters a binding agreement called an obligation. The government promises to spend the money, either immediately or in the future. An agency incurs an obligation, for example, when it places an order, signs a contract, awards a grant, purchases a service, or takes other actions that require it to make a payment.”	“Obligation,” Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov/ .
Parent Recipient / Parent Award / Parent Contract	The term “parent” is used in federal procurement to designate a hierarchy in contracting. It can refer to any overarching contract, recipient, or award.	
Post-Katrina Emergency Management Reform Act (2006)	The 2006 Post-Katrina Emergency Management Reform Act gives FEMA additional guidance on its mission and priorities and it provides legislative authority for the agency to partner with state, local, tribal, and territorial governments before, during, and after disasters.	Post-Katrina Emergency Management Reform Act of 2006, S. 3721, 109th Cong. (2006), https://www.congress.gov/bill/109th-congress/senate-bill/3721 .
Procurement	For the federal government, procurement is “the acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated.”	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
Procurement Contract	“An executive agency shall use a procurement contract as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when—(1) the principal purpose of the instrument is to acquire (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; or (2) the agency decides in a specific instance that the use of a procurement contract is appropriate.”	31 U.S.C. § 6303 (1982), https://www.law.cornell.edu/uscode/text/31/6303 .

Term	Definition	Citation
Public Assistance Program	The Public Assistance (PA) program provides critical assistance, in the form of direct assistance and grants, to state, tribal, and local governments, as well as certain private nonprofit organizations, to enable communities to respond to and recover from major, presidentially declared emergencies and disasters.	<i>Public Assistance Program and Policy Guide</i> (Washington, DC: U.S. Department of Homeland Security, Federal Emergency Management Agency, June 1, 2020), https://www.fema.gov/sites/default/files/2020-06/fema_public-assistance-program-and-policy-guide_v4_6-1-2020.pdf .
Public-Private Partnerships (PPP)	"Public-private partnerships involve collaboration between a government agency and a private-sector company that can be used to finance, build, and operate projects."	Jim Chappelow, "Public-Private Partnerships," Investopedia, last modified March 28, 2020, https://www.investopedia.com/terms/p/public-private-partnerships.asp .
Recipient	"A company, organization, individual, or government entity (i.e., state, local, tribal, federal, or foreign), that receives funding from the U.S. government."	"Recipient," Glossary, USAspending, accessed October 5, 2020, https://www.usaspending.gov/ .
Shareholder Primacy	A theory that states, "corporations exist primarily to serve shareholders"—and relegate the interests of any other stakeholders to positions that [are] strictly 'derivative of the duty to stockholders.'" While this principle has long dominated corporate practice, it has recently been modified according to the Business Roundtable's new "Statement on the Purpose of a Corporation," which foregrounds Corporate Social Responsibility.	Cydny S. Posner, "So Long to Shareholder Primary," Harvard Law School Forum on Corporate Governance, August, 22, 2019, https://corpgov.law.harvard.edu/2019/08/22/so-long-to-shareholder-primacy/ .
Robert T. Stafford Disaster Relief and Emergency Assistance Act (1988)	The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act) dictates how the federal government responds to emergencies and disasters.	Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 92-288, 42 U.S.C. 5121 et seq., (2019), https://www.fema.gov/sites/default/files/2020-03/stafford-act_2019.pdf .

Term	Definition	Citation
Subcontract	“Subcontract means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.”	<i>Federal Acquisition Regulation</i> (Washington, DC: General Services Administration, 2019), 52.2-157, https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf .
Sustainable Development	Sustainable development “implies a process in which reasonable material needs are met within ecosystem limits—despite legitimate critiques regarding various and culturally specific definitions of ‘development’ and ‘needs.’”	Julian Agyeman, “Sustainability,” in <i>Keywords for Environmental Studies</i> , eds. Joni Adamson, William A. Gleason, and David N. Pellow (New York: New York University Press, 2016), 186.
USAspending.gov	<p>USAspending.gov is the official open data source for federal spending information in the US. It houses a wide range of information, from interactive data visualizations to downloadable CSV files with detailed information about awarding of federal funding. For a full guide to navigating this database, see “How-to: USAspending.gov.”</p> <p>Here is an abbreviated list of the types of searches that are possible on the site:</p> <ul style="list-style-type: none"> • Spending Explorer: shows an overview of federal spending, organized by different components, and visualized. • Award Search: allows for specific searches through “advanced search” or “keyword search.” • Profiles: shows an overview of specific entities within the federal government, has options for visualizations, and links to detailed searches. • Download Center: allows for csv downloads of searches. Note the “data dictionary” which explains the terms in the downloads. • Glossary: USAspending has its own glossary, from which many of the definitions here have been pulled. 	USAspending, accessed October 5, 2020, https://www.usaspending.gov/ .
The Walsh–Healey Public Contracts Act (1936)	This act mandates that contractors pay overtime, a wage that corresponds to the prevailing wage for services of a type in the region, and sets limits on the usage of teen (under 16) and currently-incarcerated convict labor. This act also sets standards for fair use of convict labor as well as standards for job safety and health.	The Walsh–Healey Public Contracts Act of 1936, 41 U.S.C. 6501-6511, https://www.law.cornell.edu/uscode/text/41/subtitle-II/chapter-65 .

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